UGANDA PROTECTORATE

ANNUAL REPORT

OF THE

GAME DEPARTMENT

FOR THE

Year ended 31st December, 1947

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THE GAME DEPARTMENT

ANNUAL REPORT

For the Year ended 31st December, 1947

SECTION I.—ADMINISTRATION

Expenditure and Revenue

1. Figures are as follow :—

	£
Expenditure	10,372
Revenue (gross)	20,047

The revenue was derived as follows :—

	£
*(*a*) Sale of ivory, rhinoceros horns and hippo teeth	14,366
(*b*) Game licences	5,681

Receipts from (*a*) show a decline of 31 per cent. and from (*b*) an increase of 52 per cent. in the case of (*a*) £14,323 was derived from the sale of ivory.

2. At the two ivory auctions, held at Mombasa, the average price realised per lb. was Shs. 13·32 and Shs. 11·88 compared with Shs. 16·31 and Shs. 16·15 in 1946 ; a drop in price respectively of 18 per cent. and 26 per cent.

3. Game and Special Licences issued :—

	1947	1946
Resident's (Full)	273	195
Visitor's (Full)	18	4
Resident's (Fourteen-day)	1	1
Visitor's (Fourteen-day)	4	2
Resident's or Visitor's Two Elephants	88	74
Resident's or Visitor's Third Elephant	45	41
Resident's or Visitor's Three Elephants	40	13
Native's Two Elephants	83	47
Native's Third Elephant	35	31
Native's Three Elephants	22	12
Special for One Black Rhinoceros	4	1
Bird	932	865

4. With the easing of the ammunition situation, and with ivory still at a profitable price, nearly £2,000 more revenue has been derived from the sale of licences. Licences to hunt 604 elephants were taken out as compared with 389 in 1946.

* The gross value realised : from this have to be deducted costs of internal transport in Uganda and external transport to Mombasa, auction charges and rebates to Native Administrations, totalling about £1,500.

5. The total weights sold and prices realised at auction were as follows :—

	Weight	Gross price realised	Approx. average price per lb.
	lbs.	*£ s. cts.*	*Shs. cts.*
JULY—			
Ivory	11,825¾	7,872 19 99	13 32
Rhino horns	21½	18 10 64	17 65
Hippo teeth	40¾	2 3 06	1 07
NOVEMBER—			
Ivory	10,860½	6,450 6 13	11 88
Rhino horns	15¼	17 11 50	23 05
Hippo teeth	94¾	5 0 11	1 05

The total of 22,858½ lbs. is nearly 2½ tons less than in 1946, *e.g.* a decrease of 19 per cent.

6. Ivory, etc. :—

		lbs.
(*a*)	Balance in store at Mombasa on 31st December, 1946—	
	Ivory	3,882½
	Rhino horns	21½
	Hippo teeth	34¼
(*b*)	Received at Mombasa between 1st Jan., 1947, and 31st Dec., 1947—	
	Ivory	25,888¾
	Rhino horns	46½
	Hippo teeth	182¾
(*c*)	Balance in store at Mombasa on 31st December, 1947—	
	Ivory	7,034¾
	Rhino horns	31¼
	Hippo teeth	81½

		lbs.	
IVORY FIGURES—Balance at Mombasa on 31st December, 1946			3,882½
Received at Mombasa during 1947			25,888¾
	TOTAL ...		29,771¼
Sold during 1947		22,686½	
Shrinkage		50¼	
			22,736½
Balance at Mombasa on 31st December, 1947			7,034¾

Illegal Killing of Game and Breaches of Game Laws

7. Illegalities in connection with elephant hunting, the acquisition of ivory, and the selling of game meat have been prevalent and are widespread.

The high price of ivory is sufficient inducement for law breaking on an extensive scale, and as there are many who share in the profits the necessary evidence to bring cases to Court is rarely forthcoming.

8. Unfortunately, owing to lack of adequate control due to the absence of the necessary supervisory staff, game guards for many years have been able to reap a rich harvest by shooting elephants for African licence holders, retaining for licence holders the larger tusks obtained in the course of control operations, and selling for high prices ammunition otherwise unobtainable by the public.

These also are offences difficult of detection as there are usually too many profitably involved. When a game guard, and especially one of long

and hitherto good service is caught out, one cannot help feeling under the circumstances, when temptation is so great and the results so lucrative, that he has been as much sinned against as sinning. It is unquestionably unfair to have to leave these Government employees so much to their own devices, and irregularities decrease as soon as it is possible once again to exercise close control.

9. The Toro District has been the focus of game meat selling on an unprecedented scale, a state of affairs which has not been assisted by the attitude of some of the Native Authorities who have set a shocking example. If the rulers set the fashion in law breaking, the public will follow suit. It is hoped that the measures taken to cope with this menace have had a salutary effect.

10. Several parties of undesirable visitors from a neighbouring territory indulged in most objectionable methods when elephant hunting in the Northern Province ; and, in consequence, remedial measures have been taken to prevent a repetition of such behaviour.

11. There have been some successful prosecutions for illegal elephant hunting and the unlawful possession of ivory. A European who helped himself to three elephants from the sanctuary in Acholi found it to be a very costly misdemeanour.

12. Singo, Buganda, continues to suffer from the activities of well-armed native poachers. Systematic poaching has been going on there for many years without let or hindrance from the Native Administration. The apprehension of the culprits who are well known, is said to be impossible on account of their threatening, revengeful attitude ; but there is little doubt that their immunity from arrest is mainly due to the fact that most of the local authorities are hand in glove with the poachers.

Legislation

13. Legislation affecting game was as follows :—

(i) *Legal Notice No.* 20, by virtue of which three islands in Katwe Bay, Lake Edward, which are frequented by elephants, were added to a Game Reserve.

(ii) *Legal Notice No.* 53, which provides for the Control of Shooting on Dams in the Busoga and Teso Districts of the Eastern Province, the Acholi and Lango Districts of the Northern Province, and the Ankole District of the Western Province.

(iii) *Legal Notice No.* 92, proclaiming, in the interests of tsetse control, in certain areas of Buganda, that, with the exception of the elephant, no animals are to be hunted.

(iv) *Legal Notice No.* 139, increasing the fee for a Visitors' (Full) Game Licence from £25 to £50.

(v) *Legal Notice No.* 169, which obliges the holder of a Visitor's Game Licence to present for registration, before the Administrative Officer-in-Charge of the District in which it was obtained, any ivory lawfully acquired.

Game Reserves and Sanctuaries

14. *Bunyoro and Gulu.*—The resumption of the Murchison Falls trip is referred to in paragraph 206. It is known that there has been considerable trapping of game in this Reserve.

A *pied-a-terre* for wood cutting and canoe building, opposite Pakwach, where cultivation is permitted, has been a source of considerable trouble.

15. The Game Ranger based on Gulu has demarcated conspicuously with *karais* hung in trees the greater part of the boundaries of this Reserve. In parts of it game is plentiful, in particular along the Nile and, in the Sanctuary by the Little Aswa river. Black rhinoceros are plentiful in the Gulu portion, and in the elephant sanctuary (Restricted Sleeping Sickness area to the north).

16. Elephants from the sanctuary are frequently a nuisance in East Madi, and a special arrangement has been made in order to deal more effectively with these marauders, as well as with the occasional incursions by rhinoceros and giraffe.

17. *Toro* (*or Semliki*).—Poaching is unfortunately prevalent in this Reserve, difficulty of access being a major stumbling block in enforcing effective control. The Toro Game Ranger has, however, put in a lot of hard work in this region, and his counter measures against the poachers have achieved some remarkable success. Fish poachers from the Congo camp frequently on the Lake Albert shore.

18. *Lake George.*—This Reserve provides an increasingly pleasing spectacle of wild life by the roadside. In particular, elephants and buffaloes are taking less and less notice of the passing traffic. Lions and wild dogs are inclined to be too numerous for so restricted an area.

19. *Ankole.*—A good variety of game, including eland, survives in the small Reserve on the Gayaza road just south of Mbarara.

Game Trophies

20. Return of tusks from elephants shot by licence-holders :—

District	Under 10 lbs.	10 lbs. and over	20 lbs. and over	30 lbs. and over	40 lbs. and over	50 lbs. and over	60 lbs. and over	70 lbs. and over	80 lbs. and over	90 lbs. and over	100 lbs. and over	Total tusks
Mengo ...	...	11	19	27	17	2	...	...	...	...	...	76
Mubende ...	...	2	9	11	16	4	1	2	...	...	...	45
Masaka ...	...	...	...	...	...	8	...	...	...	...	...	8
Ankole ...	...	4	9	8	3	2	...	...	...	...	...	26
Toro... ...	...	20	60	53	29	20	11	6	...	...	...	199
Kigezi ...	2	...	12	10	4	6	11	3	3	2	...	53
Bunyoro ...	...	10	11	20	13	6	8	2	...	2	4	76
West Nile ...	...	2	16	14	9	9	7	6	2	2	...	67
Madi ...	...	...	...	9	1	3	1	...	...	1	1	16
Acholi ...	5	9	27	29	14	19	8	16	1	1	9	138
Mbale ...	...	3	2	1	...	...	...	...	...	...	...	6
Moroto ...	...	...	2	...	...	2	1	1	...	...	...	6
Lango ...	...	1	4	3	2	4	2	...	2	...	...	18
Busoga ...	...	...	4	8	6	2	2	...	...	...	...	22
Teso... ...	...	...	...	...	...	...	4	...	...	...	...	4
TOTAL ...	7	62	175	193	114	87	56	36	8	8	14	760

21. This represents 382 elephants, a 32 per cent. increase on last year (290). Fourteen tusks—one from a single tusker—each exceeding one hundred pounds in weight were obtained, *e.g.*, from eight elephants. The heaviest pair weighed 147 lbs. and 124½ lbs., another pair 131 lbs. and 118 lbs. There are 101 bulls with tusks of 40 lbs. and under 60 lbs. ; 51 of 60 lbs. and under 90 lbs. ; and 16 with tusks of 90 lbs. and upwards. This leaves 214 with tusks of less than 40 lbs., and indicates that at the present rate of taking out elephant licences, the sportsman with a licence for three elephants should make certain of bagging one with tusks of 40 lbs. or over.

22. 216 leopard skins were exported, which is not considered excessive. The majority are taken out of the country as trophies, and are not for sale ; many are of considerable age. Nevertheless, there is resort to all manner of devices in an endeavour to obtain sale permits for skins of recent acquisition.

23. 48 lbs. of ivory curios valued at £55 11s. entered in transit *via* Mpondwe Customs Post ; 2,972 tusks totalling 84,380¾ lbs. and valued at £55,740 4s. from Belgian Congo *via* Butiaba. No trophies entered *via* the Merama Hill, Vurra and Kisoro Posts.

SECTION II.—ELEPHANT CONTROL

24. Elephants continue to be plentiful in many, and abundant in some, localities. Owing to the profit to be derived from elephant hunting due to the high price of ivory licence holders are playing an important part in control, as their efforts tend to reduce the type of elephant which is most inclined to be a shamba raider.

The estimated total elephant wastage for 1947 is approximately 1,400, which includes allowance for deaths from natural causes and from poaching.

25. The amount of damage caused by elephants has continued to decline in many parts of the Protectorate, though insistent and vociferous appeals for assistance by contrast show no similar reduction.

26. The number of elephants killed by the Game Department staff in the course of organised control activities during 1947, is as under :—

District	No. of Elephants	Male	Female	Tusks	Single tuskers	Total weight
						lbs.
Mengo	66	59	7	129	3	1,475
Mubende... ...	56	47	9	111	1	1,429
Masaka	12	5	7	24	...	410½
Ankole	1	1	...	1	1	29
Toro	135	90	45	266	4	2,700
Kigezi	50	50	...	99	1	1,556
Hoima	10	10	...	19	1	234
Masindi	180	180	...	358	2	4,744½
West Nile ...	52	22	30	103	1	1,570
Madi	90	81	9	177	3	2,330
Acholi	58	26	32	114	2	1,828
Lango	4	4	...	8	...	55
Busoga	23	23	...	43	3	650
Mbale	...	...	...	...	...	...
TOTAL ...	737	598	139	1,452	22	19,010¾

27. The average weight per control tusk is 13 lbs., which is the average for the past seven years.

28. The following figures represent the number of tusks of below and over 10 lbs. weight obtained in the course of control operations :—

District	Under 10 lbs.	10 lbs. and over	20 lbs. and over	30 lbs. and over	40 lbs. and over	50 lbs. and over	60 lbs. and over	70 lbs. and over	Total
Mengo	63	49	13	4	...	...	...	...	129
Mubende	45	46	13	5	2	...	...	...	111
Masaka	2	12	10	...	...	...	...	...	24
Ankole	...	...	1	...	...	...	...	...	1
Toro	134	116	13	1	1	1	...	...	266
Kigezi	49	15	16	12	5	2	...	...	99
Hoima	10	5	4	...	...	...	...	...	19
Masindi	162	138	27	16	13	2	...	...	358
West Nile	48	40	4	2	1	4	3	1	103
Madi	86	66	25	...	...	...	...	...	177
Acholi	36	54	6	11	5	1	1	...	114
Lango	6	2	...	...	...	...	...	...	8
Busoga	20	13	4	3	1	...	2	...	43
Mbale	...	...	...	...	...	...	...	...	...
TOTAL ...	661	556	136	54	28	10	6	1	1,452

29. These tusks include one in excess of 70 lbs., six over 60 lbs., 10 over 50 lbs., and 28 over 40 lbs.

30. Found ivory from Control areas :—

District	Under 10 lbs.	Over 10 lbs.	Over 20 lbs.	Over 30 lbs.	Over 40 lbs.	Over 50 lbs.	Over 60 lbs.	Over 70 lbs.	No. of tusks	Total weight
Mengo ...	...	7	...	2	...	...	...	...	9	170
Ankole ...	2	2	1	...	...	...	1	1	7	198
Toro	9	17	5	1	...	...	...	...	32	436½
Masindi ...	...	...	2	...	...	...	...	...	2	41
West Nile ...	8	2	...	...	...	...	...	...	10	59
Madi	7	11	6	...	...	...	...	...	24	371
Acholi	6	1	5	...	2	...	...	...	14	273
TOTAL ...	32	40	19	3	2	...	1	1	98	1,548½

31. There is little change in the elephant situation, although twenty-five years of intensive control is bound to have had its effect on elephant numbers. Elephants nowadays when outside the reserves are constantly on the move, and an accurate estimate is difficult. But these big creatures are still very numerous in many parts of the Protectorate and it is probably not extravagant to claim a population of at least 16,000.

32. Notwithstanding the existence of these vast numbers it cannot be over emphasised that wild pigs and baboons, which are classed as vermin and which are ubiquitous, are generally responsible for far more damage to crops than that caused by the larger game animals. Moreover the damage to cereals in the field by birds, and to grain in the bin by rodents, damage which is not immediately apparent, is of vast proportions and much more extensive than the spectacular havoc wreaked by elephants. The depredations of myriads of tiny grain-eating birds to the ripening

crops can only be accurately gauged by shooting and examining some of the offenders, when the cumulative effect of their activities will be found in quite a small area to represent a loss of not mere pounds, but many tons.

33. Elephant control has been seriously hampered by the lack of the necessary supervisory staff, and the excellent results achieved by the game guards are not only a testimony to their efficiency, but reflect greatly to the credit of those responsible for their past training.

34. It cannot, however, be overlooked that in certain respects the efficiency of many of the game guards suffered considerably through the general lack of direct European control. It was known that the majority of them were involved in serious irregularities in connection with elephant hunting for others, substitution of ivory for the benefit of African licence-holders, and ammunition selling, all of them offences which are extremely difficult to detect (*see* paragraph 8).

35. The Acting Game Warden, who had been solely responsible for the supervision of Uganda's elephant control during the war years, was off duty till he proceeded on vacation leave in September, pending retirement, consequent on his having been medically boarded the previous November.

The other Game Ranger proceeded on vacation leave at the beginning of October.

A Temporary Ranger who was employed primarily on special fisheries duties was made available for elephant control for the last five months of the year.

36. During October, November and December an Asian Ranger was temporarily employed on a special reduction campaign in West Nile and Madi, where the elephant herds are best described as enormous.

37. In many localities much of the guards' effort has had to be diverted from elephants to buffaloes, fortunately without undue repercussions on elephant control.

Buganda

38. *Mengo.*—There are plenty of elephants in the north, in Singo and Buruli, and from them, during the rains, there are southerly thrusts of varying intensity and frequency into Gomba, Busujju, Bulemezi and Bugerere. It is reported that the situation was well and adequately controlled, and in one way and another about one hundred elephants were killed in this District, in which it is believed there are still about 2,000 elephants.

39. *Mubende.*—The two game guards suffered from the general lack of direct supervision but killed a satisfactory number of elephants, and an even greater total of buffaloes. It was, however, noticeable that their expenditure of ammunition was unduly high. In the Mubende District and in the neighbouring Bugoma Forest region there are probably 2,000 elephants.

40. *Masaka.*—In the Masaka District the resident herds appear to be confined to the southern portion of Buddu. They total a few hundreds

only and do little damage. Half-a-dozen were shot by the game guard. The immigrant masses which used periodically to visit the Katonga region are rarely in evidence.

Western Province

41. *Bunyoro.*—Bunyoro remains one of the elephant storm centres, and the local folk make the most of it. Control measures accounted for nearly 200 elephants. In the course of the annual excursion from the Game Reserve into the area between Masindi and Mutunda (on the River Nile), which takes place in the June–September period, more elephants surged out than ever before. Their vast hordes overwhelmed the defence line, and the strung-out guards were impotent to stem the tide.

42. The Game Ranger was not available to deal with the situation ; but the elephant research biologist who was in the locality at the time assumed at his own request the duties of Game Ranger to the mutual benefit of his investigations and of the Department. Elephant herds numbering as many as five hundred had more than once been reliably reported in the Game Reserve on the Lake Albert flats, and from the appearance of the broad, flattened highways crossing the road between Kiryandongo and Mutunda it looked as if fully a thousand elephants had broken out.

43. A guard has had to be allocated permanently to the Budongo Forest where wandering elephants can cause havoc in the regeneration areas.

44. Assistance has also been afforded the Bagungu settlements which are not easy to protect, situated as they are inside the Game Reserve.

45. One guard is permanently on duty in the Bugoma Forest region, but his bag is small as these elephants to a great extent keep below the escarpment where there is no settlement.

46. Bunyoro (excepting the Bugoma Forest) and Acholi continue to harbour about 5,000 elephants, a formidable total.

47. *Toro.*—After Bunyoro, Toro is the most difficult District to control. It is well provided with Game Reserves which harbour many hundreds of elephants, though it is not the elephants from the reserves which are responsible for the greatest damage.

48. The Kibale and Itwara forests, Bwamba, the thick country in Mwenge, and the thickets along the River Muzizi all afford refuges for large numbers of elephants, which too frequently raid cultivation, and which can only be dealt with under particularly exacting and difficult conditions.

49. It is reckoned that there must be fully 2,000 elephants in this District, and the Game Ranger has his work cut out to cope effectively with the situation, especially as calls for assistance may come from any quarter, and often several at the same time from widely separated localities. His responsibilities have included the Ankole and Kigezi Districts, with occasional visits to Mubende, and a special operation in northern Buganda.

50. On the whole it can be claimed that protective measures have proved satisfactory. The total number of elephants killed as a result of various activities was about 250.

51. In the vicinity of Katwe where a main highway traverses the Game Reserve the elephants are so accustomed to the passing traffic that they not infrequently pay no attention to the proximity of cars. Generally, these elephants are inoffensive.

52. *Ankole.*—In Ankole the majority of the elephants for the most part seem to keep to the Reserve and closed areas below the eastern scarp of the western rift. There is not a great deal of shamba raiding, and what there is occurs principally in Bunyaruguru and Igara ; reports of damage are uncommon.

53. A herd of about 130 frequents the Bisheshe region in the north, near the Rusangwe and Mpanga rivers. It is believed that there are about 1,000 elephants in the Ankole and Masaka Districts combined.

54. *Kigezi.*—In Kigezi the main task of the guards has been the protection of the re-settlement area, a task which has been accomplished with continued striking success, but it does not bring them seriously into conflict with elephants. On rare occasions a few strays, including some big tuskers, did penetrate this area.

55. With the exception of the Behungi bamboo forest herd, most of the elephants keep in the Reserve below the escarpment. The Rwanga herd, in Kinkizi and the Buambara herd in Ruzumbura, made occasional excursions, but very few had to be killed. On the other hand, on account of their depredations, it was necessary to treat more drastically the small, and sometimes tuskless, elephants of the bamboo forest : twenty were shot.

56. At a conservative estimate the Kigezi elephants total 300.

Northern Province

57. *Acholi.*—Acholi supports a considerable elephant population which may total as much as two thousand, but, fortunately, the majority remain in the Reserve and closed areas, from which a few may emerge spasdomically at any time, while movements on a larger scale coincide with the long grass conditions following the rains.

58. The Game Ranger based on Gulu was available only for the first half of the year, at a time when the elephants are least troublesome, and his efforts were concentrated on demarcating the Reserve boundary.

59. The damage done by marauding elephants again decreased owing to the rapidity with which the guards can visit areas affected. Koich, Attiak and Palabek are the three localities in which large herds were most frequently reported, but control efforts were successful in preventing serious damage to crops.

60. An elephant control belt was established north of the Tsetse Control area along the Acholi-Lango border, to keep elephants from moving south of a line extending from the Teso-Karamoja border to Paranga. Game guards had to be diverted from their normal control duties for this purpose. Calls on them to deal with elephants were negligible.

61. At least 150 elephants were killed by Government control and licence-holders. Although several tusks exceeding one hundred pounds in weight—the biggest pair being 147 lbs. and 124½ lbs.—were obtained in this District, there is no doubt that large tusks are becoming increasingly difficult to find.

62. *Lango.*—In Lango, elephants are only troublesome in Oyam county, where they are not resident but make destructive forays from the Game Reserve. This locality from the control aspect is best directed from Gulu.

63. *Madi.*—East Madi cultivation at times suffers severely from the depredatory, northerly thrusts of elephants from their sanctuary in the Restricted Sleeping Sickness area on the right bank of the Albert Nile. In consequence, it was necessary to introduce special protective measures : these have worked satisfactorily.

64. In West Madi elephant numbers are astonishingly high, and during the last three months of the year a Temporary Asian Ranger was specially engaged to effect an appreciable reduction, in which operation he achieved a considerable measure of success.

65. *West Nile.*—It is estimated that there must be fully, 2,500 elephants in West Nile and West Madi, a fearsome total, but large tuskers are few and far between. As mentioned in the preceding paragraph and elsewhere (paragraph 36) it has been found necessary to inaugurate an intensive reduction campaign, to continue for at least six months, in an endeavour to alleviate the situation.

66. Fortunately, damage has not been excessive, as there is still plenty of browsing available for the elephants outside the cultivation. Control and licence-holders accounted for at least 200 elephants.

67. *Karamoja.*—It appears that there are now no elephants left of the herd which once was based on the eastern swamps of Lake Gedge. An old animal, probably a survivor from this herd, was seen in the vicinity of Mt. Kadam (Debasien) in 1942. Nothing has been heard of it since.

68. There have been no reports this year of elephants from the Sudan having reached Lorengikipi dam, in West Bokora. A few, one of which was shot, visited this dam in 1946. A new dam has been constructed on a site known for many years by the local Karamojong as the "Elephants' Wallow", but it must be a decade or two since these creatures were last seen there.

69. There may be about four hundred elephants in the northern part of the District.

Eastern Province

70. *Busoga.*—In Busoga there are probably at least 600 elephants which do not cause much damage as the majority keep within the coastal, closed, Sleeping Sickness area. Others are based on the Mutai Forest, on the River Nile. Eleven have been shot by guards.

71. *Mbale.*—Reports of elephants are confined to three areas, *e.g.*, Samia, on the lake coast ; the higher parts of Bukwa, on Mt. Elgon, in Sebei ; and Bupoto, in South Bugishu, also in the Mt. Elgon region. Little damage is done.

72. Usually, once a year about July, the Mt. Elgon elephants make a swift raid into the Bukwa area of Sebei. A Kenya resident who lives in the vicinity is always ready when called upon to deal with the marauders.

73. Elephants from Namisindwa hill came down once or twice below the Elgon forest line and did some raiding in Bupoto. It is believed that the Mt. Elgon elephant herd numbers about 150.

74. *Teso.*—Elephants no longer visit this District.

General

75. *Capture of Juvenile Elephants.* Two very small elephants were caught: one in the Mubende District, found in a pit; the other in the Mengo District, after the dam had been killed. Unsuccessful endeavours were made to rear both in captivity. Many years' local experience indicates that it is hopeless to try and keep baby elephants before they have been weaned.

76. *Fractured Tusk.*—A most interesting section of a fractured tusk was sent to the Department by a Busoga resident. It is an extraordinary, if not unique, example of a successful, natural repair. The tusk originally weighed 22½ lbs., and it had been in two parts throughout its length to within a few inches of the point. The section has been presented to the Uganda Museum.

77. *Biological Research.*—Mr. J. S. Perry continued his research on the reproduction of the elephant. By the end of the year he had examined a total of 60 elephants. 24 females examined in Bunyoro in October were in an advanced stage of gestation. He found a carcase could be satisfactorily dissected the day after the animal had been shot but not later. A carcase soon distends enormously, and eventually explodes! Once a carcase was opened it was usually assaulted by a meat-hungry, intoxicated mob impossible to restrain.

78. Embryos examined range from 2½ inches overall length to one of 330 lbs.: all but the largest ones were preserved intact. Mr. Perry came across no evidence to suggest that the breeding season is restricted to a brief period of the year. He surmises that an elephant must die when all its teeth are worn out.

79. *Spearing an Elephant.*—In 1945, a marauding elephant, which turned out to be blind, was speared in cultivation near Masindi. This is only the third record in twenty years of such an unusual occurrence. The stout-hearted African was appropriately rewarded.

80. *Elephants Mating.*—In January, near Bagungu, north-east of Lake Albert, the Game Ranger came across a very large herd of several hundred elephants, in which most of the mature bulls were trying to mate. He was fortunate enough to see five successful matings, an astonishing number as one rarely witnesses such an event more than once in a life time.

81. ·375 *Holland and Holland Rifles.*—An event of considerable importance, not previously recorded, was the acquisition, in 1946, for elephant control, of a batch of the renowned ·375 Holland and Holland

87. *Colobus.*—Efforts in north Ankole to procure live specimens of the red colobus *Colobus badius tephrosceles* for the Yellow Fever Research Institute at Entebbe, proved fruitless. The habitat of this fine colobus is restricted mainly to the vicinity of the Mpanga river, from the Kibale Forest to the escarpment. Where it occurs, however, it is plentiful.

88. In 1945, in the Bwamba region of N.W. Ruwenzori, one of the Rockefeller investigators from the Yellow Fever Research Institute obtained a specimen of the red colobus *Colobus badius ellioti*, which is the first record of this race from Uganda. Both these races of colobus belong to the *rufomitratus* group. The same investigator has also at long last obtained examples of *Colobus polykomos ruwenzorii* (of the *angolensis* group), which should now enable the status of this colobus to be correctly determined ; it is undoubtedly closely related to *Colobus polykomos adolfi-friederici* which occurs in the Sango Bay forests on the western shore of Lake Victoria in the Masaka District. The specimens of *ruwenzorii* were collected at an altitude of about 8,000 feet on one of the northern spurs of the Ruwenzori range.

89. *Monkeys.*—In the course of scientific investigations which have been carried out in the Bwamba region during recent years by the Rockefeller Yellow Fever Research workers some interesting monkeys—one species *Cercopithecus mona denti* not previously recorded from Uganda—have been discovered.

90. *Cercopithecus l'hoesti l'hoesti*, which also occurs in the Kayonsa Forest, in Kigezi, was found to be locally common. It comes down to the ground a lot, and is a confirmed shamba raider. The Baamba are most skilful at hunting this species with dogs under exceedingly difficult montane conditions, and a hunt is a highly organised operation in which the odds are on the monkeys ; to participate in such a hunt is said to be a real thrill.

91. Another find was *Cercopithecus neglectus*, popularly known as the Brazza monkey, which was previously known from the Mt. Elgon region, though I have no record of any Uganda collected skins or specimens. In Bwamba it appears to be associated with the wild oil palms, but it is so shy and secretive that even the Baamba were not aware of its presence and have no name for it. It is possibly not uncommon in suitable localities. According to African report it also occurs locally in the forest region near the Mobuku River on the eastern side of the Ruwenzori range. It is a large and strikingly handsome "blue" monkey, which can be readily recognised by the broad, golden browband. It has a pronounced beard, as well as a whitish transverse bar across the haunch.

92. In one square mile of the Bwamba forest region no less than twelve species of primates including the chimpanzee and the baboon, are now known to occur.

93. Game guards have been sent for a period of several months to Buvuma and the Sese Islands to assist the inhabitants in dealing with insect monkeys which cause extensive damage to crops and gardens, and which are a constant source of vociferous complaints.

In Buvuma 224 monkeys were reported killed, and at least 325 in Sese.

It must, however, be recorded that the responsibility for dealing with minor pests which are vermin, *e.g.*, monkeys, is not normally the responsibility of the Game Department, and as soon as 12 bore shot guns are procurable Native Governments should purchase the necessary shot guns and ammunition for dealing with marauding monkeys.

In 1946 it was said that after school the children on Buvuma used to organise monkey hunts, and that in a period of 31 days 121 monkeys were killed.

94. *Potto.*—In 1945, a potto which had been electrocuted when climbing a power standard was found at Nsambya, Kampala, and sent to the Game Warden. It was handed over to Makerere College for anatomical study.

(ii) CARNIVORA

95. *Lion.*—Lions continue to be generally distributed, and in some outlying areas are still common. The usual damage to stock has been reported from various parts of the Protectorate. In recent years few cases of man-killing have been reported though in 1940 a girl was killed and eaten in the Kazhara county of Ankole, which suggests that man-killing lions may still persist in this District.

In 1945 there was a serious case of man-eating in Karamoja, and six persons were killed ; two of the lions concerned were destroyed. During 1947 a County Chief's porter in Karamoja was seized and carried off from beside a campfire. In August, 1946, three lions killed an Acholi : they were at once hunted and all three were speared and killed. In Teso a marauding lion was speared to death. Goat killing by lions seems to be on the increase which may indicate, at least locally, a shortage of their normal food. There are still a few stout-hearted Africans who are prepared to take appropriate action in defence of their property ; in the Mubende District a Gombolola Chief slew two marauding lions with a shot gun ; he was suitably rewarded for his initiative and courage.

97. But the best story comes from Kotido, in the Jie county of Karamoja, where a hungry lion joined in the VJ day celebrations. While great feasting and dancing were going on the raider seized an ox. A lion hunt was then included in the victory programme, the intruder being well and truly despatched, after which the celebrations continued for three more days ! Lions are still apt to turn up in unexpected places ; at the end of 1945 a well-maned male was seen more than once not far from Mukono, in Kyagwe, only 15 miles from Kampala, and a pair were reported from the Mabira Forest (also in Kyagwe). In January the following year the male of this pair was shot, but the lioness accompanied by one cub continued to frequent the forest for several months, and sometimes appeared on the Kampala-Jinja road. Periodically lions continue to visit Mbarara, and in 1945 one was shot within two miles of the township. Cubs are mainly born during the dry season months of November, December and January, though two cubs reckoned to be about six weeks old were found near Mbarara in June.

98. *Leopard.*—Wherever leopards occur, which in fact is virtually throughout Uganda both at low and high altitudes, they are frequently in conflict with man owing to their propensity for purloining his calves, goats, sheep and other small live stock. In consequence, notwithstanding the measure of protection which in recent years has been afforded this nocturnal prowler, a number are killed annually in defence of property. It is believed that at present the annual wastage amongst the local leopards is fully compensated by the normal increase. Reports from some Districts indicate that despite the protection afforded, so far no increase is apparent.

99. Africans not infrequently get mauled—fatalities sometimes resulting—when trying to protect their stock. As a result of several years' indiscriminate leopard killing indulged in to reap the benefit of the amazingly high prices paid for their spotted skins—Shs. 400 was about the peak—the leopard population in many localities was reduced to such a dangerously low level that the destructive baboons and wild pigs have increased inordinately. It is hoped that the proteetion afforded the leopard will soon be showing dividends by a restoration of the balance between the leopard on the one hand and baboons and wild pigs on the other.

100. A lorry ran over and killed a leopard at mile 85 on the Kampala–Mubende road. A leopard which by night entered a hut in the Binyinyi gombolola of Sebei took a 3 months old baby from the breast of its mother who was asleep. The remains of the child, consisting of the skull and some bones, were found the next day. A trap was set where the remains were found, and the leopard was caught and killed.

101. *Cheetah.*—A delightful young cheetah which was caught in Lango in 1944 was kept as a pet in Kampala for some time until a prowling dog caused its untimely end.

102. *Golden Cat* (*Profelis aurata cottoni*).—Skins of this particularly handsome race of the golden cat have been obtained from Ruwenzori and the Masaka District. Skins of the commoner mouse-grey variety have been seen recently from several parts of the Protectorate. Adults are big, heavy creatures considerably larger than the serval cat, and said to be extremely savage.

103. *Black Civet Cat.*—The skin, skull and skeleton of a melanistic example of the civet cat killed near Hoima was received from Mr. D. N. Stafford, O.B.E., and presented to the Uganda Museum.

104. *Black Caracal.*—The occurrence of melanistic examples of the caracal, popularly called the African lynx, in the Kangole region of Karamoja is as unexpected as it is interesting. It is believed that this is the first record of melanism in the caracal, and the black variety must be a singularly attractive creature. It would appear that there is a black strain in this locality which breeds true to its abnormal colour for litters of black kittens occur. The Australian Expedition which was collecting for the Sydney Zoo in the latter part of 1946 secured a half-grown speeimen and a small kitten, the latter unfortunately did not survive. In Karamoja the caracal is fairly common, and is locally called "ESAKANULI LOWALE",

"LOWALE" is derived from the Karamojong verb "AKIWAL", to wear feathers, *e.g.*, referring to the creature's tufted ears. The Lango call the caracal "ANYWE".

105. *Serval Cat.*—Judging from the large numbers of serval cat skins which pass through traders' hands, this elusive species is evidently still plentiful.

106. *Kaffir Cat* (*Felis ocreata*).—This species which is generally distributed, is plentiful in parts of the Eastern Province. It sometimes mates with domestic cats, and it is from the Kaffir cat that the domestic cat is descended.

107. *Hunting Dog.*—This wickedly destructive species is still common in many parts of the Protectorate, but being rarely seen by Europeans does not often come to notice. During 1945 reports received from various localities indicated that wild dogs were unusually numerous, especially in the southern regions of the western rift. In 1947, sight records were reported from Ankole, Toro, Bunyoro, Acholi, and West Nile.

108. *Aard Wolf.*—A skin of this curious insect-eating species, which superficially resembles a small striped hyena, was received in 1945 from Karamoja, in parts of which District it is believed to be not uncommon. The only previous record of its occurrence in Uganda was a skin sent to the Game Warden from Karamoja by an Officer of the King's African Rifles, in 1926, who had shot it east of Mt. Zulia.

109. *Spotted Hyena.*—From Karamoja, in 1945, the Agricultural Officer sent the Game Warden two skins of animals—a male and a female—claimed by the Karamojong to be those of a "giant" hyena. Although undoubtedly outsize, they could certainly be identified with the ordinary spotted hyena, though possibly old and unusually bold examples, as the "giant" is alleged to be exceptionally fierce. Unfortunately, the skulls were missing, so the question of age could not be investigated.

110. These beasts are called locally "ETUTUI", which is said to be larger, browner and with smaller spots than the "EBU" which is the common spotted variety. The "ETUTUI" is reputed to be generally silent, and a great stock raider. It is curious how persistent is the belief throughout the Protectorate in the existence of a large and a small species of hyena, the alleged differences being definitely recognised and admitted by most tribes.

In 1947 from Karamoja there were many complaints that packs of spotted hyenas were killing cattle.

111. *The Laughing Hyena.*—According to an African correspondent, a marauding lion in Ankole entered a hut, killed a sheep and devoured most of it, leaving the remains to a hungry hyena which had been following the lion. Not being satisfied the lion, still followed by the hyena, continued to prowl hoping for something else. The lion smelt some more sheep and was about to burst open another hut to get at them when the hyena, thinking of the coming feast, laughed with joyous anticipation. The lion turned on its noisy companion and killed it. This, concludes the report, is the result of presuming too much on friendship.

112. *Ratel or Honey Badger.*—In June a honey badger was trapped at Kawanda, only eight miles from Kampala.

113. *Clawless Swamp Otter* (*Aonyx capensis subsp.*).—A strange visitor killed in an Entebbe garden, fully half-a-mile distant from Lake Victoria, at the end of April, 1940, was a clawless otter. Heavy rains had probably induced it to wander far from its normal habitat in the dense marshes and swamps. It was a large female and weighed 27 lbs. The common otter of Lake Victoria which is often seen at Entebbe in pairs or family parties is the white-necked species *Lutra maculicollis.*

(iii) UNGULATES

114. *Buffalo.*—As the years go by and as the counter measures to check the spread of rinderpest become more and more effective so do the buffalo herds increase incredibly. Thousands of buffaloes are killed each year, but little impression seems to be made on their ant-like swarms. The actual damage caused by these big brutes is trivial but their very presence is a lively source of complaint, and complaints are prompted not so much through fear as from an ardent desire for a good meat feed. In regard to buffalo control the trouble now is that the bullet has perforce to accomplish what the virus did so effectively in the past.

115. During the year at least 3,000 buffaloes were killed, and fully half of these by illegal hunting or for meat selling. A blind buffalo was killed in Kigezi in the course of resettlement control operations.

There is still a small herd of buffaloes in the vicinity of mile 6½ on the Kampala–Entebbe road. They are well known to the local inhabitants who are not troubled by them, and who prefer that they should be left alone.

116. In 1946, a European, while out elephant hunting in Toro, was severely injured by a buffalo. It was a most unfortunate incident, entirely unprovoked, and could have happened to anyone.

The hunting party moving in single file through savannah unwittingly disturbed a somnolent buffalo resting behind a bush. The two leading Africans had passed before the buffalo got to its feet, and it was the European who was caught and butted as the scared beast rushed off.

During the year one tsetse guard was killed by a buffalo ; and two Departmental game guards injured, fortunately not seriously.

117. An unrehearsed episode which was unanimously voted as too thrilling by the participants, who were members of a filming expedition, concerns an encounter one evening not far from Katwe (Toro) between a saloon car and a small herd of buffaloes. It was after dark, the car being driven by an Honorary Game Ranger, when a group of large animals suddenly raced across the road immediately ahead of the car. All but one got clear ; it was knocked over and pinned under the vehicle where it struggled wildly. None of the party was armed and no one fortunately was hurt, though the car was put out of action.

118. A few years ago there was a welcome element of comic relief in a report from Kinkizi (Kigezi) where a small boy called his father to come and drive his neighbour's cattle from the banana *shamba.* The father

sallied forth armed with a stick to deal with the trespassers and found himself confronted by a herd of buffaloes.

119. In 1940, an astounding tale was received from Toro. According to local report a buffalo when drinking at a water hole was bitten on the tongue by a turtle. The buffalo left the well and blood started to gush out of its mouth, shortly afterwards it fell down and died. The matter was personally investigated by a Gombolola Chief who examined the carcass and found the tongue damaged. The water hole is out in the bush and is neither used by the people nor by the cattle on account of the large number of turtles permanently in it. The cause of death is difficult to suggest. The stricken animal had evidently rubbed its mouth against a small acacia tree which was thickly clotted with blood.

120. *Roan Antelope.*—A certain number have unfortunately been killed in the course of game eviction operations in the Acholi-Lango tsetse control area. Not uncommon locally in Karamoja ; but said to be becoming scarcer in S. Ankole.

121. *Eland.*—Various reports indicate that this fine species continues to thrive in many parts of its normal habitat.

122. *Bushbuck.*—This cover-frequenting skulker is widely distributed, in fact it occurs almost everywhere, and is still common. Many have been killed during tsetse control, but far more perish in the course of tribal hunts. It is said to be plentiful on Dagusi Island in Lake Victoria off the Busoga coast.

123. *Situtunga.*—Plenty of marsh antelopes are still found in most of the papyrus swamps, but the trouble for those who seek them is to find them.

124. *Waterbuck.*—Some grand heads can often be seen in the Lake George Game Reserve near the main road. In various parts where the waterbuck is plentiful it can be very destructive to crops and has to be dissuaded from its forays. Tsetse control operation combined with tribal hunts in Acholi-Lango have accounted for considerable numbers.

125. *Uganda Kob.*—This lovely species has suffered severely at the hands of tsetse control and tribal hunts in Acholi-Lango. The Game Department has suggested that in future the kob—which is a plains-frequenting antelope—should be spared in the course of anti-tsetse operations. It is heartening news that in certain localities this attractive antelope is still plentiful.

126. *Jackson's Hartebeest.*—This is another species which has suffered severely from tsetse control and tribal hunts. Except in a few still-favoured localities it must be considered a rapidly diminishing species.

127. *Topi.*—The topi is on the decrease and is unlikely to survive long in its ever decreasing habitat.

128. *Reedbuck.*—The reedbuck is widespread, and though not often seen is fairly common. It persists almost everywhere.

129. *Klipspringer.*—A klipspringer, which was captured very young in the course of a baboon hunt, was brought up by the Acholi hunter who caught her. She spent the following year being herded with Acholi goats,

to whose manner of life she completely adapted herself. In European hands she showed herself of more ready intelligence than many animals. The peculiar construction of her hooves proved especially suited to a polished cement floor, on which she was most agile.

130. *Oribi.*—This graceful little antelope is one of the commonest victims of the tribal hunt : tsetse control also takes its toll.

131. *Common Duiker.*—The abundance of duikers in eastern Uganda was not realised until war-time relaxations permitted the killing of the lesser antelopes for meat and the sale of their skins. Annually for several years many thousands have been killed in Teso and Lango without there being any noticeable falling off in the quantities available.

132. *Red (Forest) Duiker.*—Thanks to the generosity of the Budongo Forest Officer another skin and skull of the interesting red duiker, *Cephalophus harveyi weynsi*, has been received from the Budongo Forest.

133. *Yellow-backed Duiker (Cephalophus sylvicultrix).*—The occurrence of this curious and exceedingly local species which frequents thick cover in dense forest was reported from the Kayonsa Forest, in Kigezi, at the end of 1939. It is called locally "ENKANDA" and is the subject of various tabus which probably accounts for no tangible evidence being previously forthcoming. The first authentic evidence of its occurrence in Uganda was a headless skin which was sent to the Game Warden in 1940, since when several more skins have been received and distributed to the Uganda Museum and other scientific institutions. Skulls and horns have not been easy to acquire subject as they are to certain inhibitions. The female is hornless, and the juveniles are strikingly striped and spotted pale yellowish on a dark background. Adults are very dark brown with a broad yellowish pennant shaped mark commencing broadly on the rump, running along the dorsum, and narrowing to a point on the withers. African hunters have the greatest respect for this buck, the males of which when cornered or wounded become dangerously aggressive.

134. *Giant (Forest) Hog.*—This magnificent hog is plentiful in many parts of western Uganda though generally rarely visible. However, in parts of the Lake George and Lake Edward Game Reserves it can be seen from the roadside. It has evidently fully recovered from the effects of the rinderpest which well-nigh exterminated it more than twenty years ago.

135. *Wart Hog.*—This oddity of the animal kingdom is still plentiful in many parts, and particularly in the Game Reserves in the western Rift. Tsetse control and tribal hunts exact a heavy toll in Acholi-Lango. A very large male, dug out of an ant bear burrow at Serere weighed 320 lbs.

136. *Red River Hog (Potamochoerus intermedius).*—A fine specimen of the red river hog was shot in the Lake Edward region in 1942. The very handsome example which was presented to the Zoological Society of London in 1946 by the Yellow Fever Research Institute at Entebbe unfortunately died shortly after its arrival from an acute infestation of internal parasites.

137. *Bush Pig.*—Several years of unnecessary leopard slaughter for profit has enabled the wild pig to increase astonishingly. It always was

a pest, but now it is a veritable menace. Tens of thousands are killed annually but without making any impression on its overwhelming numbers. Tsetse control has had only limited success against this elusive marauder. In the lake-shore areas of western Teso it is said to be increasing at an alarming rate. The intellectual advancement of the local populations is not conducive to the encouragement of pig hunting. Efforts have been made to foster a trade in wild pig skins, which will fetch a few shillings when properly prepared.

In 1940, at 2 p.m. one day, a solitary wild pig was seen feeding in a garden at Soroti. When approached by a dog it charged and butted like a goat, and then went on feeding. The dog was no longer interested !

138. *Hippopotamus.*—Seasonally, the hippopotamus takes to shamba raiding, and has to pay the price for coming into conflict with man and his works. In this way annually a few hundreds are killed in defence of property, but the toll taken is negligible in view of its continued abundance. In some of the localities less accessible to authority many hippos have been shot in order to make profit from meat selling. According to locality a hippo sells from Shs. 60 to Shs. 200. Every few years the hippo herds above the Ripon Falls on account of their depredations in Jinja township, have to be thinned out, but there are always plenty more to take the place of those which have gone. The Township Authority when necessary, with the approval of the Game Warden, permits only strictly controlled and limited shooting.

139. In the River Nile between Lake Albert and the Sudan border, where this species is not protected many hippos are killed annually ; in fact the total killed must be very high judged from the quantity of hippo teeth originating from the West Nile District. The average weight of marketable teeth per hippo is about 18 lbs. One ton of hippo teeth represents about 125 hippos. Yet there are always plenty of hippos to be seen in this stretch of the Nile.

140. Reference to hippo mortality will be found in paragraphs 188–193.

From time to time an aggressive hippo appears off the fish landing at Katwe, in Lake Edward, and has to be liquidated. Occasionally canoes have been attacked, and lives lost. In 1946, a canoe was overturned at Kazi, not far from Port Bell, and four Africans were drowned.

141. There is probably no other country, excepting the neighbouring Parc National Albert in the Belgian Congo, where the tourist can so easily see the hippopotamus in large numbers. In the vicinity of Katwe, on Lake Edward, a brief stroll from the main road brings one within sight of a hippo pack of 100 or more right at the waters edge.

142. Sometimes a hippopotamus gets caught in a seine net as it is pulled in on the north-eastern shore of Lake Albert. A couple have actually been pulled ashore, but the others, after giving the fishermen a dirty look which usually puts them to flight, step over the net to return to deeper water, while it is still some distance from the land.

143. In April, 1943, in the course of a trip to the Murchison Falls the Game Warden counted 2,500 hippopotamuses in the River Nile

between the head of the delta and the Fajao anchorage, *e.g.*, in a river stretch of about 20 miles. At the time the water was exceptionally low.

144. Hippo bulls and pairs are apt to wander far and wide, suddenly appearing in the most unexpected places. As an example, in 1940, two hippopotamuses turned up in a banana *shamba* six miles from Fort Portal and made an unprovoked attack on an African whose hip was badly gashed. The County Chief Kahuma went out to deal with them. He killed one with his first shot and wounded the other. As he ran forward to finish it off he slipped and the enraged creature was on him before he could get up. He also suffered a severely gashed thigh, and in addition had two ribs fractured besides receiving a nasty wound in his neck. His *askari* fired several more shots into the beast, and other onlookers speared it many times. It went off and was later found dead in a swamp.

145. *Giraffe.*—The giraffe continues to be persecuted for the sake of its tail, the barter value of which in N. Acholi is considerable. A tail is readily and easily disposed of by converting it into bracelets and necklaces. But to kill a giraffe for the sake of its tail is just wanton butchery, for it has been reported that nowadays carcasses have been found intact except for the tail. Resort has been had to the use of iron lion traps for the illegal trapping of these animals.

In East Madi, where these ungainly creatures periodically emerge from the sleeping sickness area and elephant sanctuary to raid cultivation, two have had to be shot.

146. A three days' old juvenile which was captured in December, 1944, in a lake-shore area in the Lango District, was successfully reared, and eventually found its way *via* Kabete research centre in Kenya to the Zoological Society of London. It was a representative of the race *cottoni*. This youngster, then over two years old, was seen by the Game Warden at Regent's Park in the spring of 1947. It was in company with five other East African juveniles of similar size, and each one of them was comfortably *sitting down* in the roomy communal pen.

147. *Zebra.*—In the Acholi-Lango tsetse control operations a few have been destroyed. Reports from various parts of the Protectorate report that this gaudy species is not only holding its own, but in some localities is increasing.

148. *White Rhinoceros.*—According to reliable sources there are still plenty of white rhinoceros—one of Uganda's "sacred" species—in West Nile and West Madi. Periodically a white rhino meets its end through misadventure, but fortunately such cases are rare. Whenever possible the skulls and lower jaws of these casualties are collected and distributed to scientific institutions.

The Conservator of Forests suggests that there are probably more white rhinoceros in the Era Crown Forest Reserve in West Madi than in the proclaimed sanctuary in the Otze Crown Forest Reserve.

149. According to a report received from the Assistant Game Warden in the Southern Sudan there are about 50 white rhinos in the narrow Sudan strip, 30 miles long by 2 miles broad, between the Uganda border

and the left bank of the Nile. Further, he estimates that there are at least two hundred of these splendid animals in the white rhino habitat northerly from West Madi (including the Nile strip previously mentioned).

150. *Black Rhinoceros.*—In the lakeside areas of Lango the black rhinoceros besides being common is both destructive and dangerous, and for some years it has been necessary annually to destroy a few. In this region in 1946 seven had to be killed, and a similar number in 1947.

In western Karamoja in 1947 a few were killed in the course of tsetse control operations : others have been destroyed in Acholi for shamba raiding.

Periodically punitive action is necessary in East Madi against marauders from the sleeping sickness area and elephant sanctuary. In this locality a few have been shot annually by game guards during the years 1945, 1946 and 1947.

Whenever possible the skulls and lower jaws of black rhinoceros killed in the course of control operations are collected and distributed to scientific institutions.

(iv) TUBULIDENTATA

151. *Ant Bear.*—Although on account of its nocturnal habits it is not often seen, the ant bear is still widespread and not uncommon in parts of the Protectorate. The occasional specimen which is killed through human agency naturally evokes considerable comment on account of its grotesque appearance.

(v) NOMARTHRA

152. *Ground Pangolin or Scaly Ant-eater* (*Smutsia temminckii*).—In 1943, a specimen of this strange, prehistoric-looking species was killed in Lango where it was unknown to the local inhabitants. Its remains were presented to Makerere College for scientific study. This species is well-known in Teso amongst the less sophisticated. It is widely distributed in Karamoja though nowhere common.

153. *Tree Pangolin.*—The arboreal pangolin is a common species in most of Uganda's forests. It has been recorded that the same tree is used for a diurnal resting place for as long as a fortnight. In recent years several attempts to keep this curious creature in captivity have proved unsuccessful.

154. *Blue Duiker or Ntalaganiya.*—This minute and graceful, forest-haunting antelope is incredibly agile, and its jumping powers really phenomenal. With a take off of a couple of feet above ground level it is capable of getting over a fence about eight feet high. It is also able to squeeze through astonishingly small holes.

(vi) RODENTIA

155. *Porcupine.*—In recent years many thousands of porcupines have been killed in Bunyoro in communal hunts. The porcupine can be wickedly destructive to certain types of growing crops, mealies being one of its favourites.

An endeavour to find a market for porcupine quills proved futile.

(B) Birds

156. *Whale-headed Stork* (*Balaeniceps rex*).—During October, 1944, as many as eight at a time could be seen near the Awoja ferry, on the direct road from Soroti to Kumi. European residents had not previously seen them there. According to the local fishermen the abnormally low level of Lake Salisbury had forced these strange birds out of their secluded, swamp haunts.

In 1945, continued low water conditions resulted in more reports than usual of sight records of this unmistakable species from its habitat in the Mpologoma area, Lakes Kyoga, Kwania and Salisbury, and the Koli swamp in Lango.

157. *Balaeniceps* still occurs near Entebbe and is believed to be not uncommon, but to get a glimpse of it is not easy, as it is unusual for it to emerge from its swampy retreat until late evening—just when mosquitoes and other insect pests are becoming unpleasantly active. Reliable observers have seen it occasionally—a chance encounter—at the swamp edge in Nakiwogo Bay, as well as at Busi.

158. *Marabout Stork*.—Breeding colonies—all in trees—of the marabout stork not previously recorded are to be found at :—

(i) Near Nakitoma, in Buruli, Buganda.

(ii) About mile 15 on the Hoima–Fort Portal road, in company with the black-crowned heron, *Ardea melanocephala*.

(iii) At the edge of a forest patch near the Ruimi river in Toro, on the Game Reserve boundary ; in association with pink-backed pelicans (*see* paragraph 160).

159. *Rosy Pelican* (*Pelecanus onocrotalus*).—The rosy pelican for a greater part of the year is abundant on Lakes Edward and George, and is believed to cause considerable harm to the economic fisheries. Its correct identity is at present obscure as it has not yet been determined scientifically whether or not there is an African race of this fine bird According to a reliable report these pelicans which had been plentiful on Lake George and Lake Edward during October-December, 1946, were scarce the following January and February, which may indicate a move to the European breeding haunts where nesting takes place from April to June. In South Africa this species has been found nesting, on the ground, in July, and despite exhaustive enquiries no other breeding locality is known in Africa. Adults examined from Lake Edward/George have shewn little sign of breeding activity, yet in November, 1946, a rosy pelican's egg was found casually deposited on the ground near Katwe in a locality where pelicans are accustomed to congregate. This does suggest the existence of an African breeding ground not very remote from Uganda. Investigations continue. The control campaign against the large numbers of rosy pelicans which had been attracted to Lake Kijanebalola by the introduction of *tilapia* proved so successful that by the end of 1945 these voracious birds had been driven away. One stomach examined contained five *tilapia*.

160. *Pink-backed Pelican* (*Pelecanus rufescens*).—By comparison with the "rosy", the pink-backed is a smaller and dirty-looking bird, which does its fishing individually, whereas the larger resorts to skilfully executed drives in which up to a dozen birds participate. Moreover, the pink-backed nests in large colonies in trees from August to October. Arrangements have been made to spare from felling a group of "mvule" trees near Kaliro, in which there are nearly one hundred nests.

It is an extraordinary sight to see the huge stick nests perched precariously on the pendant branches, with the clumsy parent or large juveniles sitting at a most awkward angle.

A breeding colony, not previously recorded which was shared with marabout storks, was observed from the air in September, 1947, at the edge of a forest patch near the Ruimi river in Toro, on the Game Reserve boundary.

161. *Lesser Flamingo* (*Phoeniconaias minor*).—The lesser flamingo in varying numbers, dependent on local conditions, is always to be found on one or other of the saline crater lakes in the Lake Edward/Lake George region. In recent years there have been no signs of breeding in Uganda. Altogether, the flamingo is an odd creature, and possibly the strangest of all birds where breeding is concerned. Expert investigations indicate that sometimes flamingoes only nest onee in five years, and that breeding colonies are so temperamental that interference at the beginning of a nesting season may result in breeding being abandoned for that year.

162. *Duck.*—In 1945, duck generally were unusually plentiful in the swamp and lake regions of the Eastern Province and along the Upper Nile, no doubt on account of the prevalent low water conditions. By contrast, in 1946, there was too much water and few duck.

163. *Francolinus nobilis nobilis.*—Thanks to the co-operation of a local prospector it has been possible to obtain live specimens and other material of this fine francolin from south-western Kigezi, this constituting the first record of this species in Uganda. Its identity was confirmed by the British Museum (Natural History). It evidently occurs locally and sparingly in an area of some 700 square miles. It freely advertises its presence by its striking and strident call which is unlike any other francolin cry. Although conspicuously noisy in the early mornings, particularly when the prevailing mist persists, the calling in no way approaches the sustained clamour of the evenings. It derives its native name—"iisokue"—from its call. A half-grown living specimen was transferred to the Sydney Zoo.

164. *Francolinus lathami schubotzi.*—This forest species is not uncommon in the Mabira Forest, though trapping is the only sure way of obtaining specimens.

165. *Guinea Fowl.*—In some parts of Uganda this tasty bird may be decreasing on account of changing conditions and over shooting, though generally it is plentiful, and there is little cause for alarm. In 1945, there was considerable local concern at the undoubted diminution of guinea fowl in Teso, attributed by some to the widespread sale of eggs during the breeding season. In consequence, a close season was proclaimed in

the whole of the Eastern Province and in the adjacent Lango District, from 1st May to 31st October each year, during which period neither the bird nor its eggs can be molested.

166. *Forest (Crested) Guinea Fowl—(Guttera edouardi seth-smithi).*—In the Mabira Forest the handsome crested guinea fowl breeds in February and March prior to the long rains ; while in the Budongo and Bugoma Forests in Bunyoro May–June appears to be the breeding season.

167. *Black-bellied Bustard (Lissotis melanogaster).*—The black-bellied bustard occurs on all the islands of Lake Victoria, wherever there are sufficient open expanses of short-grass land. On one occasion, on the uninhabited island of Bulago, near Kome, quite a number of these birds were seen.

168. *Martial Hawk Eagle (Polemaetus bellicosus).*—A well-grown and friendly juvenile of this magnificent eagle, which had been taken from a nest in the Mabira Forest, was acquired in 1946 by the Australian Zoological Expedition, and successfully transferred to Sydney.

169. *Crowned Hawk Eagle (Stephanoaetus coronatus).*—This is the African monkey-eating eagle, a huge species which is by no means uncommon, in fact several occur close to Entebbe, though it is not often seen and rarely recognised. However, it recently came to unwelcome notoriety owing to its attacks on Yellow Fever Research monkeys on tree-top platforms in the lake-shore forest near Kisubi. The murderer was, however, accommodating enough to leave at the scene of the crime a feather from which it was identified.

170. *Crested Eagle (Lophoaetus occipitalis).*—We are told that the truth is sometimes stranger than fiction, and here is such a case. An adult crested eagle which had been trapped was brought to a European residing near Masaka. It had about four feet of cord attached to a leg, and with this it was fastened to a shady tree, and left to its own devices. It was fed generously on raw meat. After a few days it escaped—and was written off. Two days later a crested eagle plaintively whistling appeared at food time, and as its behaviour suggested it was not a stranger a plate of raw meat was put out and immediately consumed. Thereafter it put in an appearance daily to get a free feed, and eventually became so fearless that it would perch on the European's arm and feed greedily from the plate she held.

171. *Bateleur Eagle (Terathopius ecaudatus).*—It is extraordinary how quickly this noble species, which spends most of the day soaring high above the ground, tames in captivity. I have seen a fine adult which had been captive only a short while let itself be handled by its owner, and crouch down so that it could have its head scratched.

172. *Fish Eagle (Cuncuma vocifer).*—The handsome fish eagle at times demeans itself by scavenging, for a pair were seen feeding on a revoltingly putrescent, week-old, crocodile carcass.

173. *Osprey (Pandion haliaetus).*—Ospreys are common seasonally along the shores of Lake Victoria. Unlike the fish eagle, which makes its swoop feet foremost, the osprey dives at its prey head first. It is particularly noticeable how the osprey when hunting fishes *into* the sun to obviate its shadow being detected as it makes its plunge.

Although some ospreys are certainly resident, no nest has yet been reliably recorded. A well-grown juvenile capable of fishing was seen with its parents at Katebo, in October.

174. *Co-operation with European Bird-Marking Stations.*—During 1940 twenty-nine bird rings were recovered from localities east of the Nile on the main passage route of the palearctic migrants. Of these 27 are from white storks, one from a swallow, and one from a black kite (*Milvus migrans*), which was ringed as a nestling on 13-6-1938 in Eastern Germany (52° 35′ N. : 14° 38′ E.). Exhausted storks bearing rings are sometimes brought in alive to district headquarters where a record is taken of their particulars, and the birds when strong enough are released. Serial Nos. 16, 20 and 24 were captured alive, but No. 20 was too exhausted to recover. The experience of many years indicates that stork mortality from sheer exhaustion is severe.

175. In 1941, twenty rings were recovered from storks, two of which were claimed to be black storks.

In subsequent years, due presumably to conditions in Europe and a cessation of bird ringing, recoveries were few, *e.g.*, 1942—2 ; 1943—5 ; 1944—nil ; 1945—2 ; and 1946—2.

Recoveries of Birds Ringed in Europe

No.	Locality	Date	Latitude	Longitude	Species	Mark
1.	Chawente, Kwania, Lango ...	12– 2–40	1°49′N.	32°41′E.	White Stork	Vogelwarte, Helgoland, Germania, 221175.
2.	Minakulu, Oyam, Lango ...	16– 2–40	2°29′N.	32°21′E.	do ...	Vogelwarte, Helgoland, Germania, 222877.
3.	Apach, Maruzi, Lango ...	15– 2–40	1°59′N.	32°32′E.	do ...	Vogelwarte, Rossitten, Germania, BB 12284.
4.	Palabek, Acholi	6– 3–40	3°27′N.	32°34′E.	do ...	Museum Zoolog., Polonia, Varsovia, 503216.
5.	Minakulu, Lango ...	March	2°29′N.	32°21′E.	do ...	Ornithol, Centr., Riga, 101653.
6.	Apach, Lango	March	1°59′N.	32°32′E.	do ...	Vogelwarte, Rossitten, Germania, BB 11017.
7.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, 2737.
8.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Museum, Zool, Polon, Polonia, Varsovia, B508103.
9.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, 2657.
10.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Vogelwarte, Helgoland, Germania, 221 524.
11.	Alito, Lango	April	2°25′N.	32°48′E.	do ...	Vogelwarte, Rossitten, Germania, B 66 286.
12.	Kitgum, Township ...	22– 4–40	3°18′N.	32°53′E.	do ...	Museum, Zoolog. Polonia, Varsovia, B 509422.
13.	Palwo, Lango	May	2°47′N.	33° 9′E.	do ...	Museum, Zoolog. Polonia, Varsovia, 506688.
14.	Kitgum, Matidi, Acholi ...	May	3°18′N.	33° 3′E.	do ...	P. Skovgaard, Europa, Viborg, Denmark, 13037.
15.	Pepei, Kisoko, Budama ...	14–10–40	0°44′N.	34° 6′E.	Hawk ...	Vogelwarte, Rossitten, Germania, C 65559.
*16.	Dodos, Atongolo, Teso ...	15–10–40	1°55′N.	33°50′E.	White Stork	A 463 Bulgarion, Jagdorginasation, Sofia.
17.	Bwobo, Acholi	23–10–40	2°36′N.	31°59′E.	do ...	Vogelwarte, Rossitten, Germania, BB 11494.
18.	Adwari, Moroto, Lango ...	October	2°26′N.	33°10′E.	do ...	Vogelwarte, Rossitten, Germania, B 68 164.
19.	Kuju, Teso	29–10–40	2° 1′N.	33°41′E.	do ...	Vogelwarte, Helgoland, Germania, 218773.
*20.	Obalanga, Amuria, Teso ...	31–10–40	2°26′N.	33°35′E.	do ...	Vogelwarte, Rossitten, Germania, B 47027.
21.	Koro, S. Gulu, Acholi ...	November	2°42′N.	32°20′E.	Swallow ...	N. Museum, Praha, CSR,E. 19467.
22.	Mucwini, Acholi ...	24–10–40	3°30′N.	33° 4′E.	White Stork	Musee Royal, Sofia, Bulgarie, S 30960.
23.	Pader, Gem, Acholi ...	2–11–40	2°51′N.	32°57′E.	do ...	P. Skovgaard, Viborg, Danmark, Europa, R 13286.
*24.	Aloi, Lango	November	2°16′N.	33° 9′E.	do ...	Vogelwarte, Rossitten, Germania, B 76008.
25.	Omoro, Moroto, Lango ...	November	2°15′N.	33°21′E.	do ...	Musee Royal, Sofia, Bulgarie, 33867 s.
26.	Amuro, Moroto, Lango ...	November	2° 7′N.	33°19′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, 7962 B.
27.	Adekokwok, Erute, Lango ...	November	2°15′N.	32°54′E.	do ...	Musee Royal, Sofia, Bulgarie, 20839 s.
28.	Ngai, Oyam, Lango	December	2°30′N.	32°30′E.	do ...	Vogelwarte, Rossitten, Germania, BB 15594.
29.	Okocho, Adachal, Teso	December	2° 5′N.	32° 5′E.	do ...	Vogelwarte, Rossitten, Germania, B 76 124.

* Signifies living birds.

1940. **Recoveries of Birds Ringed in Europe**

No.	Locality	Date	Latitude	Longitude	Species	Mark
1.	Chawente, Kwania, Lango ...	12- 2-40	1°49′N.	32°41′E.	White Stork	Vogelwarte, Helgoland, Germania, 221175.
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3.	Apach, Maruzi, Lango ...	15- 2-40	1°59′N.	32°32′E.	do ...	Vogelwarte, Rossitten, Germania, BB 12284.
4.	Palabek, Acholi	6- 3-40	3°27′N.	32°34′E.	do ...	Museum Zoolog., Polonia, Varsovia, 503216.
5.	Minakulu, Lango ...	March	2°29′N.	32°21′E.	do ...	Ornithol, Centr., Riga, 101653.
6.	Apach, Lango	March	1°59′N.	32°32′E.	do ...	Vogelwarte, Rossitten, Germania, BB 11017.
7.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, 2737.
8.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Museum, Zool, Polon, Polonia, Varsovia, B508103.
9.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, 2657.
10.	Chegere, Lango ...	March	2° 5′N.	32°31′E.	do ...	Vogelwarte, Helgoland, Germania, 221 524.
11.	Alito, Lango	April	2°25′N.	32°48′E.	do ...	Vogelwarte, Rossitten, Germania, B 66 286.
12.	Kitgum, Township ...	22- 4-40	3°18′N.	32°53′E.	do ...	Museum, Zoolog. Polonia, Varsovia, B 509422.
13.	Palwo, Lango	May	2°47′N.	33° 9′E.	do ...	Museum, Zoolog. Polonia, Varsovia, 506688.
14.	Kitgum, Matidi, Acholi ...	May	3°18′N.	33° 3′E.	do ...	P. Skovgaard, Europa, Viborg, Denmark, 13037.
15.	Pepei, Kisoko, Budama ...	14-10-40	0°44′N.	34° 6′E.	Hawk ...	Vogelwarte, Rossitten, Germania, C 65559.
*16.	Dodos, Atongolo, Teso ...	15-10-40	1°55′N.	33°50′E.	White Stork	A 463 Bulgarion, Jagdorginasation, Sofia.
17.	Bwobo, Acholi	23-10-40	2°36′N.	31°59′E.	do ...	Vogelwarte, Rossitten, Germania, BB 11494.
18.	Adwari, Moroto, Lango ...	October	2°26′N.	33°10′E.	do ...	Vogelwarte, Rossitten, Germania, B 68 164.
19.	Kuju, Teso	29-10-40	2° 1′N.	33°41′E.	do ...	Vogelwarte, Helgoland, Germania, 218773.
*20.	Obalanga, Amuria, Teso ...	31-10-40	2°26′N.	33°35′E.	do ...	Vogelwarte, Rossitten, Germania, B 47027.
21.	Koro, S. Gulu, Acholi ...	November	2°42′N.	32°20′E.	Swallow ...	N. Museum, Praha, CSR,E. 19467.
22.	Mucwini, Acholi ...	24-10-40	3°30′N.	33° 4′E.	White Stork	Musee Royal, Sofia, Bulgarie, S 30960.
23.	Pader, Gem, Acholi ...	2-11-40	2°51′N.	32°57′E.	do ...	P. Skovgaard, Viborg, Danmark, Europa, R 13286.
*24.	Aloi, Lango	November	2°16′N.	33° 9′E.	do ...	Vogelwarte, Rossitten, Germania, B 76008.
25.	Omoro, Moroto, Lango ...	November	2°15′N.	33°21′E.	do ...	Musee Royal, Sofia, Bulgarie, 33867 s.
26.	Amuro, Moroto, Lango ...	November	2° 7′N.	33°19′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, 7962 B.
27.	Adekokwok, Erute, Lango ...	November	2°15′N.	32°54′E.	do ...	Musee Royal, Sofia, Bulgarie, 20839 s.
28.	Ngai, Oyam, Lango ...	December	2°30′N.	32°30′E.	do ...	Vogelwarte, Rossitten, Germania, BB 15594.
29.	Okocho, Adachal, Teso ...	December	2° 5′N.	32° 5′E.	do ...	Vogelwarte, Rossitten, Germania, B 76 124.

* Signifies living birds.

1941.

No.	Locality	Date	Latitude	Longitude	Species	Mark
1.	Nyabusoze, Ankole	5– 1–41	0° 7′S.	30°32′E.	White Stork	P. Skovgaard, Viborg, Danmark, R.5020.
2.	Palango, Lango	January	1°54′N.	32°20′E.	do ...	P. Skovgaard, Viborg, Danmark, R.11531.
3.	Palango, Lango	January	1°54′N.	32°20′E.	Black Stork	Vogelwarte, Helgoland, Germania, 311780.
4.	Makererwe, Masaka	7– 2–41	Equator	31°30′E.	White Stork	Vogelwarte, Rossitten, Germania, B.67215.
5.	Rubanga, Ankole	14–12–40	1° 2′S.	30°12′E.	do ...	Vogelwarte, Rossitten, Germania, B.67265.
6.	Mutozho, Ankole	8– 1–41	1° 2′S.	30°12′E.	do ...	Vogelwarte, Rossitten, Germania, BB. 7056.
7.	Agwata, Ankole	February	1°59½′N.	33° 0′E.	do ...	Vogelwarte, Rossitten, Germania, BB. 12706.
8.	Rubona, Kitega, Toro	February	0°44′N.	30°54′E.	do ...	Vogelwarte, Rossitten, Germania, B. 73408, B65171.
9.	Kabindi, Kigezi	February	1°18′S.	29°41′E.	do ...	Vogelwarte, Rossitten, Germania, 65658, 65659.
*10.	Dokolo, Lira	March	1°55′N.	33°10′E.	do ...	Vogelwarte, Rossitten, Germania, BB 8325.
11.	Kashari, Ankole	March	0°36′S.	30°36′N.	do ...	Museum Zoolog. Polonia, Varsovia, B 502329.
12.	Mitoma, Ankole...	March	...	...	do ...	Vogelwarte, Rossitten, Germania, B 70778.
13.	Ruampara, Ankole	March	...	...	do ...	Oiseaux Museum Paris, B 6723.
14.	Kabira, Buruli, Mengo	28– 2–41	1°15′N.	32°30′E.	Black Stork	Avertir, Musee Royal Sofia, Bulgarie, S 30996.
15.	Lubare, Ankole	March	1° 2′S.	30°12′E.	White Stork	Vogelwarte, Rossitten, Germania, B 57448.
16.	Nkokonjoro, Central, Bugishu ...	8– 4–41	1° 4′N.	34°15′E.	do ...	Museum Zoolog. Polonia, Varsovia, B 508623.
17.	Lubworomor, Acholi	25– 4–41	3° 9′N.	32°21′E.	do ...	Vogelwarte, Helgoland, Germania, 222769.
18.	Nyaina, Ruampara, Ankole ...	June	0°53′S.	30°15′E.	do ...	Mus. Zool. Polon, Polonia, Varsovia, B 7939.
19.	Lubare, Ankole	August	1° 2′S.	30°12′E.	do ...	Helgoland, Germania, H 297.
20.	Lubare, Ankole	August	1° 2′S.	30°12′E.	do ...	Vogelwarte, Rossitten, Germania, B 66464.

1942.

*1.	Bumbobi, Central	28– 2–42	1° 3′N.	34°13′E.	White Stork	Vogelwarte, Rossitten, Germania, BB 3288.
*2.	Buseta, Central	24– 3–42	1° 5′N.	33°46′E.	do ...	Universite Kaunas Lithuania, B.2665.

* Signifies living birds.

1943.

No.	Locality	Date	Latitude	Longitude	Species	Mark
1.	Buyobo, Bugishu	16- 3-43	1°12′N.	34°18′E.	White Stork	Vogelwarte, Helgoland, Germania urgent retour 221709.
2.	Iceme, Oyam, Lango	24- 4-43	2°25′N.	32°37′E.	do ...	Inform Vogelwarte, Rossitten, Germania, B 80936.
3.	Aduku, Kwania, Lango	5- 5-43	2° 0′N.	32°43′E.	do ...	Adrease Europa R 3848 P. Skovgaard. Viborg, Danmark.
4.	'Ngai, Oyam, Lango	30- 4-43	2°30′N.	32°30′E.	do ...	Tarnowica Pol 364.
5.	Busoga, Mbale	10- 5-43	0°55′N.	34° 9′E.	do ...	B 3213 Rossitten Germania.

1944. No rings were recovered.

1945.

1.	Kyadondo, Mengo	17- 1-45	0°28′N.	32°30′E.	White Stork	Mus. Zool. Polon. Polonia, Varsovia, B 50.1274 Retour.
2.	Nyendo, Ankole...	October	0°55′S.	29°45′E.	do ...	Vogelwarte, Rossitten, Germania, 19685. BB.

1946.

1.	Near Soroti, Teso	1- 2-46	2°10′N.	33°35′E.	White Stork	Inform Vogelwarte, Helgoland, Germania, H 352.
2.	Paimol, Acholi	End of Apr.	3° 6′N.	33°27′E.	do ...	Vogelwarte, Helgoland, Germania, 229065.

1947

	Kalabongo, N. Acholi	29- 9-47	3°50′N.	33° 1′E.	*Larus fuscus fuscus* (*juv.*)	Zoolog Museum Copenhagen Scandinavian Lesser Black-backed Gull Denmark 460835.

NOTE.—This gull was banded as a nestling on 6th July, 1947, on the small island of Grasholmen, Christianso, N.E. of Bornholm in the Baltic.

177. Endeavours are being made to obtain particulars of the dates of ringing of all these recoveries, but so far it has been possible only to get the details of nine white storks bearing Rossitten rings, as follow :—

Ring No.	Date	Locality
BB 11286 ...	30–6–39 ...	Kleinkreuzhausen (Angerapp), Kreis Insterburg, East Prussia, Germany.
BB 11017 ...	15–7–38 ...	Darkehmen, Kreis Insterburg, E.P.
B 76124 ...	June or July 40 ...	In the Kreis Brieg, District Breslau, Schlesien, Germany.
BB 7056 ...	27–6–36 ...	Birkenhorst, Kreis Insterburg, East Prussia, Germany.
BB 12076 ...	June or July 40 ...	Ostilmen, Reg.-Bez. Gumbinnen, East Prussia, Germany.
BB 3288 ...	4–7–36 ...	Insterburg, E.P.
B 80936 ...	June 42 ...	Near Lubny (ca.50°N. : 36°E.), Ukraine, U.S.S.R.
BB 19685 ...	July 44 ...	Neupassau, near Bumbinner, East Prussia, Germany.

All these birds were ringed while still in the nest.

(C) Reptiles

178. *Crocodile.*—The crocodile is dealt with at length in paragraphs 338–350 of the Fisheries section.

179. *Monitor Lizard* (*Varanus niloticus*).—The monitor lizard is well distributed and abundant in many lake shore, swamp and riverain localities. It seems to be particularly plentiful these days in the vicinity of the Lake Victoria crocodile breeding grounds. There is as yet no indication that undue slaughter is taking place for the sake of the skins.

180. *Python.*—The python occurs almost everywhere except at the higher altitudes, and is far more plentiful than is generally realised. The small trade in the skin of this large snake is being closely watched, and will not be permitted to develop unduly.

181. *Mamba* (*Dendroaspis angusticeps*).—There is more loose talk in Africa about the occurrence of the black mamba—of ill fame—than of any other wild creature, and Uganda is no exception in this respect. All large black snakes, no matter the locality, are immediately dubbed "black mamba", a species which incidentally is rarely black and which only occurs in some of the eastern areas of the Protectorate. During 1946 a fair-sized specimen, brown in colour, was killed at Serere, near Soroti, which constitutes the first authentic record known to the Game Department of the occurrence of this deadly species in Uganda. Previously it was believed that it was only likely to be found in Karamoja.

182. *Gold's Cobra* (*Naja goldii*).—A huge specimen of this West African forest cobra was killed by a prospector in Buhwezu (western Ankole), 15 miles S.E. of Lake George, at an altitude of about 4,400 feet.

It was 9 feet long, and before it was collected it had been noticed for several days resting in the same tree.

183. *Mystery Snake.*—The year's award for the best snake story goes to Bugishu, whence at the end of 1945 came the report of a large snake which was seen on a hill near Bukiyenda. "It cries like a goat, and its cries

can be heard at a long distance. Now and again it leaps into the air. In thickness it is thought to be 1½ or 2 feet, and its length 12 feet or more : it is difficult to approach. It is thought to be of the kind known as *nyabebe* to the Bagishu, and that it came by night." Luckily, no more was heard about this fearsome monster which may have been a python suffering from indigestion.

SECTION IV.—GENERAL

(A) Diseases of Game

184. As the 1946 Report, Part I, contains no reference to diseases of game, it is necessary now to mention the occurrences of 1940–1946, in addition to those of 1947.

Acknowledgments are due to the Director of Veterinary Services for an annual résumé of the incidence of rinderpest, with particular reference to game.

185. *Rinderpest.*—During 1940 only one buffalo was reported found dead, in Gomba (S.W. Mengo), early in the year. One bush pig was found dead during an outbreak near Mwiyembe in North Bugishu, and in the same infected area later, in June, five buffaloes died.

The eland herd which roams near Napak (Mt. Kamalinga) was infected in March, but it is not known how many died. Meat from one was involved in an offence against the quarantine regulations.

186. For the three years 1941–1943 rinderpest was ever present and widespread, though, as usual, fluctuating in intensity.

During the first nine months of 1944 this disease was rife in game in many Districts, *e.g.*, Mengo (Buruli and Bulemezi), Mubende, Bunyoro, Ankole, Kigezi, Masaka and Lango. Deaths appeared to be particularly heavy along the Katonga river during the first half of the year. In general, reports indicated heavier mortality in these areas than has been experienced at any time during the past twenty years or so.

Reports received during July, August and September stated that game animals were dying from rinderpest in the Sleeping Sickness areas south of Lake George and on the flats bordering the Kazinga Channel, as well as in the Semliki sector of the neighbouring Parc National Albert.

187. Notwithstanding various unauthenticated reports rinderpest was not confirmed amongst game during 1945. In 1946, outbreaks occurred only in Teso and Lango, and game does not appear to have been affected.

During 1947 no rinderpest was reported in game animals.

188. *Hippopotamus mortality.*—Unexplained hippopotamus mortality, on a considerable scale, occurred in the Uganda stretch of the Semliki river, on the Congo border, during February and March, 1941. The responsible malady had evidently travelled down the Semliki, for the Conservator of the Parc National Albert had reported that hippos were dying in the Semliki river, near its exit from Lake Edward, at the beginning of February, 1941. The Conservator later reported that there was further hippopotamus mortality at the southern end of Lake Edward during the months of July, August and September.

189. In March, 1942, deaths were still occurring in Lake Edward. According to Congo research workers the mortality was due to "charbon symptomatique" or black quarter, though the Uganda Veterinary Pathologist was of the opinion that it was more likely to be a form of malignant oedema of the gasgangrene group. Further mortality was reported in 1944 from the Congo waters of Lake Edward.

190. In July–August, 1946, there were many deaths amongst hippos in the Kazinga Channel, in parts of Lake George and in Lake Edward. In the following February deaths were still occurring in the Kazinga Channel.

During March–April, 1946, many hippos died in the lower Rutshuru river, in the Parc National Albert.

191. In December, 1945, mortality on a very considerable scale occurred in the Nile between the Lake Albert delta and the Murchison Falls, and several hundred hippopotamus carcasses floated out of the river across the lake to Panyamur. The heavy mortality continued for several months in 1946, and it is reckoned that 1,000 to 1,500 hippos perished. Owing to shortage of staff neither the Veterinary Department nor the Game Department was able to investigate the disease which, in consequence, remains a mystery. But, it may not be extravagant to suggest that over stocking was the primary cause.

192. In this connection, *vide* paragraph 143, in April, 1944, 2,500 hippopotamuses were counted between the head of the delta and the Fajao anchorage, that is in about twenty miles of river there was an average of 125 visible hippos per mile.

In 1944 the Nile was abnormally low, so low in fact that after the end of April the railway launch was unable to make the trip to the Falls. Water conditions in 1945 continued to deteriorate.

193. Many of the hippopotamuses frequent shallow lagoons, which normal or high water levels scour periodically : this beneficial process could not have taken place for at least two years, and these lagoons must have become so foul that no wonder disease broke out. During the same period it is possible that grazing may have been limited, and inadequate food supplies would result in a lowering of vitality and consequent less resistance to disease.

194. *Elephant mortality.*—At the end of 1945 eight elephants were found dead—a most unusual occurrence—cause unknown, though anthrax was suggested, near the Sonso river on the Lake Albert flats north-east of Butiaba.

195. *Tsetse Control in connection with Game.*—Game Department staff is frequently called upon to collaborate in tsetse control operations. Several game guards, later reduced to two, had to be detached to conduct special elephant control in the Acholi/Lango tsetse control area. In this region large numbers of game animals have been killed, and tribal hunts have also assisted in organised game eviction.

196. The present tsetse control policy which necessitates the widespread killing of game over large areas is naturally detrimental to the creation of any African public opinion which might assist game

preservation. Moreover, clearing a locality of "fly" is of little value unless full use is made of the land cleared : so far with an occasional outstanding exception little or no use has been made of the land cleared.

197. Although under Southern Rhodesian conditions it is accepted that eradication of the fauna is a proved method of getting rid of *Glossina morsitans*, it does not necessarily follow that this method will be successful elsewhere, nor may game eradication prove successful where other species of "fly" are concerned.

198. The Kigezi resettlement plan progresses satisfactorily, and four game guards are permanently employed in this area.

Tsetse control operations continue in Ankole, Buruli and Bugerere, and have had to be extended to Kyagwe. Where the rare giraffe, black rhinoceros and roan antelope occur within areas of game eviction, the Tsetse Control authorities have been requested to spare them in so far as is possible.

(B) Economic Industries

199. *Crocodile skins.*—Reference to the crocodile industry will be found in paragraphs 347 and 348.

200. *Game Skins.*—During the past six years, owing to the shortage of leather, facilities—subject to certain safeguards—have been afforded local traders for the purchase of game skins. Latterly, considerable quantities of game skins, a result of the activities of tsetse control, have been disposed of to the trade.

201. *Buffalo Hides.*—There is a firm demand for well-prepared buffalo hides ; unfortunately, so few are prepared satisfactorily.

202. *Pig Skins.*—In 1945, one hundred wild pig skins sent overseas by local interests as a test shipment were reported on favourably by the tanners, and the Game Warden saw a most attractive sample of the leather. According to quality a dried skin is worth Shs. 3 to Shs. 5, but local apathy has prevented the development of what could have been a beneficial industry.

203. *Pig Bristles.*—In 1944, negotiations took place with an East African Company for the disposal of wild pig's bristles at prices ranging from Shs. 17 to Shs. 30 per lb. according to length. Here again the uncertainty of regular supplies killed a possible trade of considerable promise.

204. *Porcupine Quills.*—Reference is made elsewhere, in paragraph 155, to endeavours to foster a trade in porcupine quills.

(C) Notes of General Interest

205. *Murchison Falls Trip.*—In 1940, world events naturally affected travel facilities in consequence of which there was a tremendous decline in the number of railway passengers visiting the Murchison Falls. Only 105 visitors made the trip ; in 1939 there had been 401.

During 1944 it was possible to make only 22 trips, when the passengers totalled 126. After mid-April, owing to abnormally low water conditions in the Nile the trips had to be discontinued.

206. In 1945, the M.L. "Murchison" only made two trips, ten passengers being carried, as continued abnormally low water made navigation too difficult to permit of further trips being attempted ; and there was none in 1946.

Sailings were resumed in 1947 when 546 passengers were carried.

In March, 1947, a truculent buffalo had to be shot on the path leading from the anchorage to the Falls.

207. *Game Conference.*—A Faunal Conference, which was attended by delegates from Eastern and Central Africa, the Union of South Africa also being represented, was held in Nairobi on 8th and 9th May, 1947. Uganda's representatives were the Acting Game Warden and the Director of Tsetse Control.

208. *Colonial Service Conference.*—The Game Warden attended a Colonial Service Conference which was held in London from 6th to 9th January.

209. *Honorary Game Rangers.*—Recently appointed Honorary Game Rangers include : Mr. F. G. Banks (1945), Mr. T. W. Chorley (1945), Mr. M. Stead (1945), Mr. J. S. Perry (1947) and Mr. T. C. Van Ingen (1947). Mr. Hugh Leeke, who had been an Honorary Game Ranger for nearly twenty years died in 1946.

210. *Scientific and Filming Expeditions.*—A spate of scientific and filming expeditions is descending on Uganda.

During 1946–1947 the expeditions included : one to film "The Life of Francis Macomber" ; the University of Copenhagen Scientific Expedition ; and Mrs. Carl Akeley.

SECTION V.—FISHERIES

(A) Administration

(1) GENERAL

211. The Game Warden returned from vacation leave at the end of May. An event of outstanding importance was the appointment of the first of the Fisheries Officers for whom provision has been made in the Development Plan. He assumed his duties on the 1st October, and has been posted to Lake Edward and associated waters where the valuable economic fisheries are most in need of guidance and control.

This Fisheries Officer's headquarters are at Kichwamba, in Ankole, on the escarpment to the south of the Kazinga Channel, and there in due course will be built for him the necessary residence and ancillary quarters, clerk's house, office, store and aquarium.

212. The Temporary Game Ranger appointed on 1st October, 1946, to check the organised and incessant poaching in Lake George (*vide* paragraph 3, Part II, 1946), had in August to take over responsibility for elephant control from Capt. R. J. D. Salmon who proceeded on leave pending retirement. His efforts to put a stop to this widespread poaching had achieved a tremendous measure of success.

213. The activities of the African fish guards continue to be concentrated on (*a*) the compilation of statistics and (*b*) general control. Control measures have been further extended by the appointment of two additional fish guards, their total now being 30.

214. As usual, during August, September, October and November, a vigorous campaign has been prosecuted against the female crocodiles on the Lake Victoria breeding grounds. Once again, with the exception of the allocation of a launch, the arrangements for and the conduct of these operations were entirely in the hands of the African clerical and fish guards staff. This campaign continues to produce encouraging results, though in 1946 and 1947 they were not so satisfactory as in previous years. Perhaps at long last the crocodile population really is decreasing ; but it must be taken into account that the 1947 campaign has been adversely affected by the difficulty of obtaining a launch, as well as by the activities of the Colonial Insecticide Research investigators who have driven off the breeding crocodiles from at least four normally well patronised nesting grounds.

(2) LEGISLATION

215. During 1947 various Rules, Proclamations, Orders, and Notices specifically concerned with the development and control of the fishing industry were published as Legal Notices, by virtue of the Game Ordinance and the Trout Protection Ordinance. Also, an important Order under the Defence Regulations, 1939, was issued for "The Control of Crocodile Catching and Purchase of Unprocessed Crocodile Skins".

216. The following is a list of the relevant Legal Notices :—

Legal Notices No. 50, 52, 53, 64 (revised by L.N. No. 80), 65, 80, 179 (Defence Regulations, 1939), 229, and 243 (Trout Protection Ordinance).

The most important item is "The Fishing Rules, 1947", published in Legal Notice No. 52, which consolidates the fishing regulations. The Order for "The Control of Crocodile Catching and Purchase of Unprocessed Crocodile Skins" was issued for the purpose of facilitating the readjustment of the crocodile catching industry by regulating the capture and killing of crocodiles and the purchase of unprocessed crocodile skins.

(3) NETS

217. *Supplies.*—Notwithstanding an increase of 250 per cent. in the quantities, *e.g.*, 1,142 cwt. (333 cwt. in 1946) of fishing nets imported, there has been a general shortage of all types of nets.

218. **Table A.**

QUANTITIES AND VALUES OF FISHING NETS IMPORTED

Country of origin	Quantity	Value
	cwt.	£
United Kingdom	1,141	93,614
Irish Free State	...	...
Belgian Congo	...	...
India	...	...
Elsewhere	1	82
TOTAL ...	1,142	93,696

219. Flax being no longer controlled, the lack of machines and of the necessary operatives are the main reasons for the continued net shortage.

The establishment of a local net making industry which could utilise the supplies of Uganda-grown flax would appear to be the best remedy for the existing unsatisfactory state of affairs. Not only that, but a local industry should be able to reduce the present outrageous price of nets to a more reasonable level. In this connection it is gratifying to learn that such an industry is contemplated in East Africa, in Kenya, and that the necessary machinery is on its way.

220. *Quality.*—The "Red Hand" best quality flax gill-net has not yet reappeared.

221. *Prices.*—Net prices continue to increase rapidly, which is reflected in the average price per cwt. imported. In 1946 this was £70, but in 1947 it had risen to £82, and further increases are anticipated.

222. At the end of the year the retail price of the 5-inch net was Shs. 28/37 cents, of the 3-inch Shs. 11/94 cents, and of the 2½-inch Shs. 12/52 cents : at the end of 1946 the respective prices were Shs. 26/30 cents, Shs. 11/42 cents and Shs. 12. The cotton seine net remains at the same price, Shs. 150 (*vide* paragraph 30, Part II, 1946).

223. In order to meet local requirements, especially at Lake Kijanebalola in South Koki, hundreds of nets of 3¼-inch and 3½-inch mesh have been made from cotton thread. These nets do not last, but sell readily and expensively. In waters where there is an abundance of *ngege*, such as Lake Edward, the net shortage has promoted a flourishing black market in which extravagant prices are paid.

Table B.

(4) Imports and Exports of Dried Fish

224. (i) Handled by Railway Steamers :—

(*a*) From Sese Islands and Kome :—

225 tons 1,256 lbs.

which differs little from the 253½ tons imported in 1946.

(*b*) From Tanganyika Territory :—

228 tons 1,886 lbs.

In 1946 these imports reached the remarkable total of 619 tons 2,096 lbs. ; and with reference to 1947 the Railway Administration makes special mention that "It is learnt that most of the fish is being conveyed overland from Bukoba." No dried fish was railed from Kenya.

(*c*) From Lake Albert to the Belgian Congo :—

213 tons 1,226 lbs. ; valued at £12,372 (at £58 per ton). This is a decrease of 40 tons on 1946, or nearly 16 per cent.

(ii) Railed for Export from Mainland Ports and Railway Stations :—

174 tons 1,116 lbs. which is a 10 per cent. increase on 1946.

(iii) Exported by Road :—

(*a*) To the Belgian Congo, through the Kisoro Customs Post—Nil.

(*b*) To the Belgian Congo, through the Vurra Customs Post—Nil.

(*c*) To the Belgian Congo, through the Mpondwe Customs Post.—Quantities and values of dried (salted) and smoked fish exported from Lake Edward and associated fisheries :—

225.

Month	Weight			Value		Total
	Dried (salted)	Smoked	Total	Dried (salted)	Smoked	
	tons	*tons*	*tons*	£	£	£
January	92	7	99	2,798	473	3,271
February ...	35	9	44	1,071	664	1,735
March	35	9	44	1,090	592	1,682
April	97	11	108	3,303	784	4,087
May	102	13	115	3,394	1,400	4,794
June	118	9	127	4,288	582	4,870
July	129	5	134	5,213	308	5,521
August	86	3	89	3,739	226	3,965
September ...	145	8	153	6,368	601	6,969
October	162	4	166	7,430	337	7,767
November ...	158	9	167	6,911	691	7,602
December ...	114	8	122	5,242	579	5,821
Grand Totals...	1,273	95	1,368	50,847	7,237	58,084

226. In 1946, a total of 1,049 tons was exported which was valued at £34,547. The price per ton has increased from approximately £33 to approximately £46, an increase of nearly 40 per cent.

227. At the end of 1947 Congo buyers at Katwe were paying 95 cents per kilogram, and there were indications that even higher prices might be paid. In consequence of the continually changing and rising prices, the local producers were reluctant to entertain long term contracts elsewhere which might bind them to sell later at a cheaper rate than that offered by the Congo buyers. That eventually the existing high prices will fall sharply, if not disastrously, seems inevitable.

228. 21 cwt. of fresh fish valued at £16 was exported to the Belgian Congo from Lake Edward *via* Mpondwe.

229. (iv) Imported into the Belgian Congo from Lake Albert *via* Mahagi Port :—

Month	Weight	Value
	Kilos	*Francs*
January	29,722	245,250
February	32,053	325,070
March	25,018	276,969
April	33,159	338,982
May	57,226	713,752
June...	41,010	401,035
July	46,173	465,750
August	66,859	754,278
September	31,977	244,348
October	36,005	382,239
November	34,852	343,230
December	14,028	132,902
Total ...	448,082	4,623,805—£33,027 (calculated at the rate of seven francs to Sh. 1).

(B) Economic

(1) LAKE VICTORIA

230. *Control.*—The collection of data, the enforcement of the fishing regulations, and the annual campaign against the breeding crocodiles, have constituted the principal activities of the Lake Victoria fish guards.

For another year the effort and the industry have been adversely affected by the continued net shortage, with the resultant diminution in the total catch.

231. *Vide* para. 222 the price of nets has again risen, and the five-inch mesh flax gill-net which cost a little over Shs. 26 when 1946 closed, was at the end of 1947 selling at Shs. 28/37 cents.

In view of the well-nigh prohibitive prices he now has to pay for his nets—gill-nets are more than double pre-war costs—it is not unreasonable for the fisherman to expect higher prices for his catch. It is at present difficult to visualise when and where it will end.

232. There is no falling off in the quality of the *ngege*, as the average weight is 1·56 lbs., which is a considerable improvement on the 1946 average of 1·46 lbs.

233. *Breaches of Game Laws.*—Contravention of net regulations and fishing in prohibited waters constitute the offences mostly committed.

234. *Lake Victoria Fisheries Board.*—The development plans of the Lake Victoria Fisheries Board, which will be one of the East Africa High Commission Services, have been further held up owing to the difficulty of finding a suitable Executive Officer. One of the Board's Fisheries Officers, who had been recruited in the United Kingdom, arrived in East Africa in the latter part of the year, and was stationed temporarily at Kisumu to enable him to acquire practical knowledge of Lake Victoria conditions from the Kenya Fisheries Inspector.

235. A plenary meeting of the Board was held at Jinja on 12th December when various applications for appointment as Chief Fisheries Officer (who will also be the Executive Officer) were considered, and as a result of which an offer has been made. The Board was also informed that a second Fisheries Officer had been recruited in the United Kingdom and was due to arrive in East Africa in the latter part of 1948. Further, it was agreed to appoint a local candidate as the Kenya Fisheries Officer. Subject to the approval of the Uganda Government it was recommended that the Fisheries Officer in charge of the area extending from the Kenya/Uganda border to Bukoba, in Tanganyika, should reside at Entebbe, the Board providing funds for the necessary quarters.

It really does seem that at long last the unified control of the valuable Lake Victoria fisheries has passed beyond circumlocution to become an accomplished fact.

236. *Nakiyenje Basic Landing.*—Statistics were collected at Nakiyenje landing on the Entebbe peninsula on 303 (300 in 1946) days, during

which period a total of 41,384 five-inch mesh gill-nets (approximately 136 per day) was set, being nearly 8,000 less than last year. 64,701 fish weighing 142,605 lbs. (approximately 61 tons) were caught as compared with the 1946 figures respectively of 74,793 fish and 161,998 lbs., 1·5 fish per net were taken, and the average weight of the *ngege* works out at 1½ lbs. (1·5) : these differ little from 1946 when they were respectively 1·52, and 1·55 lbs. It would appear that the shortage of nets, as well as their high price, has resulted in a reduction in effort. The *ngege*—totalling 30,376—constitute not quite fifty per cent. of the catch ; the daily equivalent is approximately 101 *ngege*.

237. The average weights of the principal species taken in the five-inch nets were :—

		In 1946
	lbs.	*lbs.*
Ngege	1·5	(1·55)
Semutundu	3·2 approx.	(3·08)
Kasulubana	2	(2 approx.)
Kisinja	3·35	(3·25)
Male	5·5	(5 approx.)
Mamba	7	(6·5 approx.)
Mpongo	just over 1 lb.	(just over 1 lb.)

The average weights of *semutundu*, *kisinja*, *male* and *mamba* all show an improvement on 1946 : in the other species the standard has been maintained.

238. In 1947, no checks have been taken of the size of the *ngege* landed at Nakiyenje, but such checks have been made elsewhere.

Small mesh nets were in particularly short supply, and, in consequence, only 960 were used at Nakiyenje during a period of 40 days : in 1946, during 98 days 3,004 were used.

239. *Average weight of ngege.*—The average weight of this important economic species calculated from the statistics collected at the eight principal fish landings (excepting Nakiyenje) in Lake Victoria, from Jinja to the Sese Islands was 1·56 lbs., and is based on 215,954 *ngege*. This is a considerable improvement on the 1946 average which was 1·46 lbs. Mainly owing to the net shortage these eight principal landings show a total decline of 83,371 in the *ngege* catch.

240. *Average size of ngege.*—Checks on the length and weight of *ngege* were taken (i) at Katebo in August, and (ii) at Masese (Jinja) in September.

(i) At Katebo, 27 *ngege* picked out at random were examined : 17 were males and 10 females : nearly all were ripe breeding fish. The average length was 12·3 inches, and the average weight 1 lb. 6 ozs. The maximum length was 13 inches, both sexes being represented in this size : small males were respectively 11, 11¼ and 11½ inches : the smallest female was 11¾ inches.

The heaviest fish were :—

Sex	Weight	Length	Condition
	lbs. ozs.	*inches*	
(*a*) Female	1·11½	13½	Ripe
(*b*) Male	1·11	13	
(*c*) Male	1· 9	13	
(*d*) Female	1· 9	13	Ripe
The lightest fish were :—			
(*e*) Male	1· 2	12	
(*f*) Male	1· 2	11	
(*g*) Male	1· 3	11½	
(*h*) Female	1· 4	11½	Spent

241.

(ii) At Masese (Jinja), 20 *ngege* similarly chosen were examined : 14 were males and 6 females : they were either ripe or spent fish. They were to a great extent small fish, eleven being less than 12 inches in length, and the same number being 1¼ lbs. or less in weight.

The average length was 11·9 inches, and the average weight 1·35 lbs.

242. *Jinja catches.*—The comparative Jinja (Masese) catches for 1946 and 1947 are as follow :—

Year	Days	Nets	Ngege	Semutundu	Kasulubana	Kisinja
1946 ...	236	52,340	168,745	27,028	11,559	4,585
1947 ...	273	34,819	123,090	10,044	11,144	2,005

The 1947 effort in a period of 37 more days than in 1946 is actually 33 per cent. less, which is probably attributable to the net shortage. The 1947 average catch per net set is 4·3 which is a fraction better than the 4·1 in the previous year. The average *ngege* catch is also slightly better being 3·5 as compared with 3·2.

243. *Fishing Effort.—Vide* paragraph 68, Part II 1946 Report, a comparison was made of the effort and the *ngege* catches for the years 1944, 1945 and 1946 at fourteen of the principal landings. It is worthwhile repeating that fishing seasons vary according to locality, and that it is not possible to have fish guards all the year at some of these landings, while others are seasonally inoperative.

The following table gives the effort and total catches at these same landings for the four years' period 1944 to 1947.

Landing	Days				Nets				Total Catch			
	Year				Year				Year			
	1944	1945	1946	1947	1944	1945	1946	1947	1944	1945	1946	1947
(1) Bugonga	86	163	165	146	3,824	8,050	5,573	4,498	12,682	17,894	11,276	9,141
(2) Kinywante	...	152	90	...	...	18,019	12,386	...	...	28,829	21,608	...
(3) Nakifulube	177	123	212	205	8,216	7,795	13,733	11,488	22,614	18,436	28,640	29,182
(4) Mukuba	55	120	84	85	1,305	4,596	3,533	2,917	1,935	6,920	3,929	5,188
(5) Kyanvubu	91	160	87	43	2,826	5,484	2,511	1,077	3,498	5,035	1,558	846
(6) Kivubu	190	179	187	89	31,421	37,586	22,968	7,758	72,971	57,038	31,921	13,114
(7) Katosi	7	95	32	117	175	8,986	3,193	8,159	763	17,776	4,982	16,508
(8) Kasirye	92	81	55	71	5,749	4,341	3,669	3,606	10,144	14,267	10,032	5,681
(9) Kikwayo (Sese)	119	85	121	96	9,194	5,045	7,152	5,500	54,740	34,625	40,816	19,774
(10) Bungo (Sese)	...	51	21	46	...	4,124	1,200	4,876	...	15,251	4,426	20,324
(11) Kasekulo (Sese)	33	22	49	80	1,156	1,083	2,143	2,580	5,846	6,837	6,283	12,974
(12) Kibanga (Sese)	27	35	13	4	932	3,175	534	100	2,690	6,061	1,138	353
(13) Masese (Jinja)	251	217	236	273	13,651	20,705	52,340	34,819	39,667	90,265	217,094	149,678
(14) Katebo	190	106	210	163	22,840	11,129	30,699	23,755	61,797	23,645	62,060	9,141
TOTALS ...	1,318	1,589	1,562	1,418	101,289	140,108	161,634	111,133	289,347	342,879	445,763	291,904

245. In these four years the average number of nets set per day steadily increased from 77 in 1944, to 88 in 1945 and 103 in 1946, and then dropped sharply to 78 in 1947. The reduction in effort in 1947, when fifty per cent. less nets were used, is to some extent due to the effects of the acute net shortage of the previous year which had not before made itself felt, as well as to the greatly increased demand for five-inch gill-nets from Lake Edward and the Kazinga Channel. The average number of fish caught per net set does not vary greatly : it was 2·86 in 1944, 2·45 in 1945 2·76 in 1946 and 2·6 in 1947.

246. 728 traps at Kamuwunga on the Buddu (Masaka) coast caught 8,620 *ngege* with a total weight of 8,535 lbs., an average of barely 1 lb. per fish. It would have been better from every aspect if these *ngege* could have grown to a size of 1½ lbs. before being caught.

At Bungo (Sese) 16,288 *ngege* checked by the fish guards averaged approximately 1·6 lbs.

247. *Kagera river.—Ningu* catches, with the 3-inch or 3½-inch mesh gill-nets, at and in the vicinity of the mouth of the River Kagera are as follow :—

Landing	Days	Nets	Ningu	Weight
Masangano	76	6,693	102,083	100,563
Mubanzi	76	6,809	90,349	88,352
Igoma	109	12,520	264,947	263,485
Kyasa	89	14,006	280,308	276,787
TOTALS ...	350	40,028	737,687	729,187

The average weight of these *ningu* is just under 1 lb. (·99 lb.).

248. The totals for these four landings in 1944, 1945 and 1946 were :—

	Days	Nets	Ningu
1944 ...	315	33,525	428,247
1945 ...	297	54,833	335,061
1946 ...	284	19,427	200,470

249. Until fish guards can be made available for duty throughout the year at these four landings it is impossible to offer reasonable comparative comments. From the figures recorded, it would at first sight appear that 1947 had been a bumper *ningu* year, but it may be that the guards happened to be at the right places at the peak of the *ningu* "run". At the same time the fact cannot be overlooked that the average *ningu* catch per net in 1947, which was 24·6 was far higher than in the three previous years, when it was respectively 12·8, 6·1 and 10·3.

250. *Dried Fish.*—Approximately 25 tons of dried fish were weighed by the fish guards at various landings. It was mainly *semutundu*, with a proportion of *kasulubana*, *ningu*, *male*, *ngege* and *kisinja*. Most of it came from Buvuma, with a little from Kome, and a still smaller quantity (just over one-third of a ton) from Sese.

251. *Prices.*—Prices of fresh fish continue to rise, and so long as the price of nets continues to increase this is unavoidable. The average wholesale prices at Nakiyenje were :—

	Shs. cts.	Increase in cents since 1946
Ngege	0 70	Nil
Semutundu... ...	1 50	50
Kasulubana ...	0 40	Nil
Kisinja	0 80	Decrease of 10
Male	0 90	10
Mamba	0 80	10
Mpongo	0 50	Nil

These increases are justifiable in view of the increased price of nets and the high cost of living.

252. Nakiyenje prices for the smaller species were :—

	Cents	Increase in cents since 1946
Ningu	25	10
Nzere ... 4 for ...	20	(3 for 20 cents)
Nkeje ... 5 for ...	20	1 per nkeje
Nsoga ... 3 for ...	20	3 per nsoga

253. *Value of the Lake Victoria Fishing Industry.*—A rough computation at the present day high prices suggests that the total value of the fishing industry in the Uganda waters of Lake Victoria is at least £40,000.

254. *Usembo Bay Boat.*—The 30-foot Usembo Bay boat which was brought to Sese for demonstration purposes in 1946 has not proved popular. The local fishermen have discarded it for fishing purposes as they claim it is too heavy to be suitable and is apt to become becalmed when most inconvenient. But they agree that it is a more effective mode of transport than the Sese canoe. However, they prefer a pattern a little smaller, of about 20-foot size, which could be used both for fishing and transport. It is understood that smaller experimental craft are being built locally in Sese, while others with a sounder technical background are being constructed at the Kampala Technical School, where, in due course, it is hoped to evolve the perfect vessel to meet all local requirements.

At Bubeke, in Sese, a boat which is being built, designed by a Muganda, is said to be 13 ft. 6 ins. by 6 ft. by 2½ ft. It is estimated that it can carry 2,000 dried *ningu* and 1,000 dried *semutundu*.

A boat building section had been established at the Kampala Technical School just before the outbreak of war. Before the project was abandoned temporarily through force of circumstances a modified pattern Usembo boat had been completed in 1940 and sold to an African for use on Lake Albert. It could carry 32 persons, and had a draught of eighteen inches. This boat was later transferred to Lake Victoria where it is still in use.

255. *Statistics.*—The statistical tables of the catches of the five-inch gill-nets, small mesh nets, and seine nets, as well as the weights of dried fish passing through various landings, recorded by the fish guards, will be found as Appendices at the end of this Report.

Table C.

256. NUMBERS OF HALF-YEARLY FISHING LICENCES ISSUED ON LAKE VICTORIA :—

	Half-yearly licences issued	Revenue collected
		£ s.
BUGANDA—		
Mengo District, Masaka District and Sese	4,000	400 0
TOTAL ...	4,000	400 0
EASTERN PROVINCE—		
Busoga District (Jinja)	432	43 4
Mbale District (Mjanji)	416	41 12
TOTAL ...	848	84 16
GRAND TOTAL ...	4,848	484 16

257. There has been a decline of nearly 30 per cent. in the numbers of half-yearly fishing licences issued with a similar decrease in the amount of revenue collected, and this indicates the relative reduction of effort in 1947. It is due to the shortage of gill-nets and their high cost combined with the continued sleeping sickness restrictions along most of the Busoga coast and around Buvuma Island.

The number of canoes and dug-outs registered in the Mengo and Masaka waters of Lake Victoria totalled 830.

(2) LAKE ALBERT (including the Albert Nile)

258. During 1947 it was still not possible to attempt any direct control of the Lake Albert fisheries.

There were more abortive attempts by non-native aliens from outside Uganda (*vide* para. 100, Part II, 1946) to secure a footing on the Uganda shores, while applications from Africans non-resident locally to develop fishing at Ndaiga, at the south-east extremity, were numerous. Ndaiga is a locality not readily accessible, and, in consequence, organised fishery development cannot be permitted until effective control is possible.

259. Administrative reports indicate that the local fisheries at Buhuka, Kaiso and Tonya, all of which are south of Butiaba, continue to flourish.

At the end of October, the Provincial Commissioner, Western Province, in the course of a launch tour to the southern end of Lake Albert was, at the invitation of a Belgian fishing company, able to witness deep water seine-ing.

The seine net used is about 900 yards in length, with a depth of 15 to 18 feet. It is made out of the twine recovered from old motor tyres, costs about £70, and lasts only one month. The greater part of the net is made of this twine and has a five-inch mesh, but the end (of about 100 yards) which is shaped like a sack, is made of sisal with a two-inch mesh. The purpose of the small mesh sisal net is to catch the big *mputa* which are held at the end of the net, and which are so powerful that they would break through the ordinary net.

260. At the time of the Provincial Commissioner's visit the seine was being fished three times during daylight hours, though normally seine-ing also takes place at night, thereby permitting a total of six hauls per 24 hours. It was claimed that the decrease in the length of the life of a net, used twice as

much during the same period, is almost negligible. Further, it was stated that fishing by night is perfectly simple and the gangs do not object as it is so much cooler. In order to cover expenses sufficient fresh fish must be caught to produce 1½ tons of dried fish per day. The weight of usable dried fish as compared to fresh varies considerably with the species, from as low as about 15 per cent. per *mputa* to as high as about 40 per cent. for *mpoi* and *ngege*.

261. The seine is operated from five boats, the main one of considerable size acting as a parent ship which is flanked by a boat each side which shoots the seine. There are also two smaller row boats to take out a counter net. The parent ship is covered with a wooden platform some 30 feet long by 10 feet broad.

The net is shot in a straight line (900 yards long) : each end of the net is attached by a 500 yards warp to the parent ship on which two parties (7 to 8 men each) begin hauling in as soon as all is ready. When the wings of the net are about 100 yards from the parent ship, the two small row boats set out with the counter net, and as the seine is drawn in the counter net gradually envelops it and prevents a large number of fish from escaping. As the seine is hauled in it is methodically folded into the two big boats on either side of the "parent" ready for the next haul.

262. To stimulate keenness bonuses are paid for good catches. The same company also operates gill-nets ; and whereas the seine net haul seen was a poor one of about 100 fish in all, a gill-net catch consisting mainly of *mpoi* and *wachone* which amounted to more than 200 fish was estimated to weigh well over a ton.

263. In the latter part of November permission was given to a local company styled Uganda Lakes Ltd., to develop in the Tonya–Kaiso–Buhuka region of Lake Albert deep water seine-ing, on the same lines as has been described in the preceding paragraphs. Such operations do not conflict with the inshore native fisheries, and at present are beyond the resources of the African.

264. There was a thirty per cent. decrease in the quantity of dried fish exported to the Belgian Congo from Butiaba. Prices have continued to rise and Congo buyers at the end of the year were paying as much as Shs. 27/50 cents per paquet.

265. The following is a detail of the Congo prices obtained per paquet from June, 1945, till December, 1947 :—

Year	Month	Price per paquet of 20 kilos (44 lbs.)	
		Shs.	*cts.*	
1945 ...	June ...	14	00	
	July ...	18	00	
	Deeember ...	16	00	
1946 ...	May ...	18	50	
	August ...	10	00	This remarkable drop was owing to the Congo markets being flooded with fish, due it was said to a ship-load which had arrived at Stanleyville from Angola.
1947 ...	January ...	20	00	
	June ...	24	00	
	July ...	25	00	
	October ...	26	00	
	December ...	27	50	—£68¾ per ton.

The best prices are usually obtained during the cotton season, *e.g.*, from January to April. The prices for Lake Albert fish are likely to remain high as Africans prefer the large type of fish.

(3) Lake Edward and Associated Fisheries

266. *Vide* paragraph 116, Part II, 1946, there has been no alteration in the dispositions of the fish guards.

Lake Edward, the Kazinga Channel and Lake George have been better controlled than ever before (*vide* paragraph 212) though control should be still more effective when the Fisheries Officer has his own launch. These fishermen, mostly immigrants, are on the whole a lawless crowd, and some drastic penalties may be necessary before they are likely to become more amenable.

267. As previously, the major portion, amounting to 1,361 tons, of the catches from this well stocked region has been exported dried (salted) and smoked to the Belgian Congo, where there is no slackening of demand and where continued rising prices are an incentive to increased effort. Inadequate supplies of nets have, however, acted as a brake on the effort, possibly to the general advantage of the fishery, for in the absence of effective control considerable harm might have resulted from over fishing.

268. There is no further information available concerning the achievements of the Belgian Congo fisheries at the southern end of Lake Edward.

269. Table of Catches :—

Species	Katunguru		Katwe		Kaianja	
	No.	*lbs.*	*No.*	*lbs.*	*No.*	*lbs.*
Ngege	867,825	1,421,039	1,676,906	2,600,184	166,225	231,870
Semutundu ...	24,243	107,938	177,119	682,041	110	424
Kasulubana ...	304	876	351	989	...	...
Kisinja ...	7,869	20,101	60,645	162,909	23	70
Male	2,404	20,478	2,600	18,109	395	2,568
Mamba ...	6,527	56,926	3,294	27,551	1,407	10,261
Ningu	1	2	246	566	...	...
Total nets set ...	12,289 (and 45,439 hooks)		83,592 (and 14,060 hooks) (and 2,840 baskets)		8 (and 404 hooks) (and 73,124 baskets)	
Total days fished	305		304		300	

270. The total catch of the principal predatory species, *e.g.*, *semutundu* (mainly), *male* and *mamba* was :—

Total number of predators	Total weight of predators	Total weight
	lbs.	*tons*
218,099	926,296	413·6

271. AVERAGES :—

	Katunguru	Katwe	Kaianja
Average number of nets per day ...	40·3	275	243·7 (baskets)
Average number of *ngege* landed per day	2,845	5,516	554
Average total weight of *ngege* landed per day	4,660 lbs. (a little over 2 tons)	8,553 lbs. (3 4/5 tons)	773 lbs. ($\frac{1}{3}$ ton)
Average *ngege* catch per net set ...	70·6	20	2·27 (per basket)

272. Average weights of :—

	lbs.	*lbs.*	*lbs.*
Ngege	1·64 (approx.)	1·55	1·4 (approx.)
Semutundu	4·45	3·85	3·85
Kasulubana	2·9 (approx.)	2·8	...
Kisinja	2·55	2·68	3
Male	8·5	7	6·5
Mamba	8·7	8·36	7·3
Ningu	2 (one fish)	2·3	...

273. The total tonnages caught at Katunguru and Katwe are :—

		At Kaianja
	tons	*tons*
Ngege	1,800	103·5
Semutundu ...	352·5	·2
Kasulubana ...	·83	...
Kisinja	81·7	·03
Male	17·2	1·1
Mamba	38	4·6
TOTAL ...	2,290·23	109·43 (baskets)

274. The total tonnage of the principal predators *semutundu* (mainly), *male* and *mamba* is :—

Katunguru and Katwe	Kaianja
tons	*tons*
407·7	5·9 (mainly *mamba*)

275. Comparing 1947 figures with those of 1946 :—

(i) There has been a fifty per cent. increase in the *ngege* catch at Katunguru, and practically no change at Katwe.

(ii) There has also been an eleven per cent. increase in the numbers and weight of predators caught.

(iii) The nets set per day have increased fifty per cent. at Katunguru, and decreased about one per cent. at Katwe, which represents the variation in effort at these two landings.

(iv) There is practically no change in the daily average of baskets set at Kaianja, and the average *ngege* catch per basket has increased from 1·65 to 2·27.

(v) The average catch of 70·6 *ngege* per net is practically the same at Katunguru (69 in 1946), and the 20 at Katwe (18 in 1946) is slightly better.

276.

(vi) Average weights of the various species show :—

(*a*) A decline in the *ngege* at Katunguru (1·79 in 1946) and Katwe (1·64 in 1946) ; and a slight increase at Kaianja (1·36 in 1946).

(*b*) A rise in the *semutundu* both at Katunguru and Katwe.

(*c*) A decrease in the *male* (from 9·2) at Katunguru, and at Katwe (from 9).

(*d*) A drop in the *mamba* (from 9·1) at Katunguru, and at Katwe (from 9).

(*e*) An improvement in the *kisinja* at Katunguru (previously 2·52), and at Katwe (2·5).

277.

(vii) The total nets set at Katunguru show an increase of nearly fifty per cent., which tallies with the fifty per cent. increased *ngege* catch.

(viii) At Katwe there is a ten per cent. decrease in the total of nets set.

(ix) At Kaianja, 4,660 less baskets have been set.

278.

(x) The *kisinja*, catch shows a 17 per cent. decrease at Katunguru, and a remarkable increase of nearly 60 per cent. at Katwe. The Katwe figures are particularly interesting as the effort in 1947 was ten per cent. less than in the previous year. The catch of 60,645 *kisinja* is comparable with the catches of 1945 and 1946 which were respectively 70,784 and 69,976.

279. *Dried Fish.*—72·3 tons of dried fish, all being *ngege*, and all but six tons originating at Katunguru, were retained for Uganda's internal trade.

280. *Prices.*—At the end of the year Congo buyers were offering 95 cents per kilo for dried fish, and there was every prospect of prices rising still higher.

(4) Lake Kyoga

281. The following table gives the catches as checked by the fish guards in the Labori region of Lake Kyoga:—

	Landing									
	Kasiyi (Labori)		Mugalama (Labori)		Namutinda (Labori)		Nakasiriki (Labori)		Kabwoso (Labori)	
Days	144		147		115		12		4	
Hooks	6,412		12,604		1,649		560		...	
Baskets	2,733		1,759		996		82		75	
	No.	*lbs.*	*No.*	*lbs.*	*No.*	*lbs.*	*No.*	*lbs.*	*No.*	*lbs.*
Nandere	82,832	30,086	65,992	29,115	30,225	12,332	3,572	1,243	3,231	1,170
Semutundu	2	16	36	167	6	22	4	20	...	...
Kasulubana	...	...	...	...	12	12	1	2	...	...
Kisinja	7	33	52	146	31	84	...	...	...	...
Male	73	244	257	955	51	126	21	66	...	...
Mamba	243	1,185	810	5,996	230	1,115	34	157	...	...
Ningu	28	18	...	...	19	7	10	4	...	...
Nkeje	439	113	...	...	28	7	20	8	47	18
Nzere	1	1	1	2	67	19	6	3	6	3
TOTAL ...	83,625	31,696	67,148	36,381	30,669	13,724	3,678	1,503	3,284	1,191

282. Compared with 1946 there has been a considerable fall in the effort, from an average of 49 baskets a day during 133 fishing days to 38 baskets a day in 147 fishing days. The average weight of 185,852 *nandere* is 0·39 lb. which is a slight improvement on the 1946 average of 0·36 lb. The total weight of *nandere* is 33 tons.

Control measures have been the same as last year (*vide* para. 152, Part II, 1946).

(5) Minor Lakes, Dams and the Victoria Nile

283. *Lake Kijanebalola.*—The extremely rapid expansion of the Kijanebalola fishing industry has merited special investigation, and during the last four months of the year visits to this flourishing fishery were made by the Game Warden, the Acting Registrar of Co-operative Societies, the Fisheries Officer and the Assistant Protectorate Agent.

284. At the time of the Game Warden's visit on 26th August the industry was probably at its peak of prosperity ; subsequently, the lack of nets, and in particular the acute shortage of the necessary thread wherewithal to make the nets, resulted in a rapid and progressive decrease in effort.

The Game Warden visited Chumnankoni the nearest landing to Rakai, whence it is about 3 miles distant. At this landing the day's catch totalled at least 6,000 *Tilapia nilotica* of an average weight of six ounces, and measuring 21·6 to 24·1 centimetres. One fish weighing 1 lb. 5 ozs., and measuring 29 cms., had been caught in a three-inch gill-net. The total weight of 6,000 fish averaging six ounces is 2,250 lbs., or approximately a long ton.

285. At that time there were about twenty landings in use, two of which were said to have a bigger fishing effort than Chumnankoni, ten others of about the same size, and several more which are smaller. Accordingly, it would appear that daily at these landings the aggregate of the catches is at least 100,000 fish having a total weight of about 17 tons, that is one hundred tons per week. It was estimated that a fishery of these dimensions would in a full year require 30,000 small mesh nets (each having a life of six weeks). The fishing effort can be taken to be approximately 300 days in the year as there is no fishing on Sundays ; the annual tonnage of fish would be about 5,000. It was quite impossible to make even a guess at the total persons engaged and the number of vessels used in this industry. From this landing more than 40 cyclists were observed to be purchasing fresh fish. On an average each cyclist transported 120 to 150 fish, weighing 45 to 56 lbs. A few of these traders may carry as many as 200 fish (75 lbs.).

286. The fish sold at the wholesale price of four for ten cents, so the value to the fishermen of this catch of 6,000 was Shs. 150. For the twenty landings the total daily value at this moderate rate was probably £125 ; which in a fishing year of 300 days works out at £37,500.

That this fishery is of very considerable value is unquestionable ; and in addition to the production and sale of fish, it is providing a

ivelihood for several hundreds of distributors, as well as fostering boat building and net making industries of considerable extent.

287. 18 small dug-outs and 14 locally made canoes (Koki boats) were seen at this landing : the latter are made of *musizi* or *nkoba* wood. The local canoe, which resembles a small punt, has a pointed bow and a blunt stern : at the stern is a seat for the paddler, and two-thirds along the craft is a thwart which acts as another seat. The vessel is flat bottomed, and conveniently carries two persons and about half-a-dozen nets. A trip was made in one of these canoes, and this type of craft is extremely suitable for the purpose intended. Built at the landing the cost is Shs. 60, but if the completed canoe is purchased some twenty miles away and transported to the lake its total cost is Shs. 80.

288. The nets used are mainly home made and of fine thread locally purchased ; they are said to have a life of 21 fishing days only, and cost Shs. 25 each. The mesh size when new is $3\frac{1}{4}$ or $3\frac{1}{2}$ inches, and the net when rigged with floats, sinkers, head lines and foot ropes, is about forty yards in length. The average catch per net per day is thirty fish ; the nets are put out in the afternoon and picked up early next morning. Fish are said to be equally plentiful all the year, and fishing operations are not interrupted on rainy days.

289. *Tilapia nilotica* normally grows to a size of two pounds and over, and is an extremely well flavoured fish. The chief criticism which could be levelled at this fishery concerns the wisdom of catching such vast quantities of immature fish, a procedure which would normally prove disastrous. But the situation has been examined with considerable care, and it appears that the local fishermen have by chance evolved the best method of safeguarding the fishery, though time will show whether this contention is correct. Should the average catches rapidly and appreciably decrease, it may be necessary either to control the number of nets used or to increase the size of mesh permitted.

290. But at present this lake is so thick with the vegetable plankton on which this species of *tilapia* mainly feeds that unless vast quantities of small sized fish are removed daily it would very quickly become so over stocked that the fish through increasing numbers would progressively decrease in size until a time when disease would intervene with calamitous consequences.

291. As mentioned in a previous report (para. 259, Part II, 1946), a most interesting feature of the situation in this lake is the absence of crocodiles, which however occur plentifully in neighbouring Lake Kachira to which Kijanebalola is connected by swamps. The dense plankton concentration in Kijanebalola is so similar to the conditions prevailing in Lake George, the Kazinga Channel and the shallower portions of Lake Edward, from which waters also crocodiles are absent (though there is little to prevent these brutes travelling up the Semliki from Lake Albert where they abound), that one is tempted to wonder whether there is some connection between the two ; at any rate it suggests an intriguing line of research.

292. Further, there are no lung fish in this lake, which is remarkable, and the large *Clarias* are plentiful only at the times that flood water has diluted the lake's thick "green" waters. Both these species possess accessory respiratory organs which it is possible may be affected adversely by a density of plankton. The *tilapia* on the other hand thrives astonishingly under these conditions, and commences to breed at an unusually small size : moreover, owing to the absence or relative scarcity of predator species it has few natural enemies.

293. There are plenty of hippopotamuses, and although there were the usual complaints, where these aquatic creatures occur, of damage to nets the case against them was not proven, and they are to be left in peace.

294. The Fisheries Officer visited Kijanebalola during the first week of December, and his investigations at a number of landings indicated that catches vary considerably according to locality and the methods employed. Catches from nets left in the water overnight varied from 21 to 30 per net ; and in those when the driving method was employed, from 16 to 38 in 3 hours, and 90 in 7 hours.

At Rusinga landing 3 nets, with driving, normally average a total of 300 to 400 fish per day.

At Kiwololo 15 nets each driven 3 times during a period of 3 hours caught an average of 55 fish per net.

295. Neither the Fisheries Officer, nor the Assistant Protectorate Agent (who also toured this region during December) could find evidence of a decrease in the extent of catches, as had been claimed, but there is no doubt that by the end of the year there had been a very considerable falling off in effort due mainly to the difficulty of obtaining nets. For instance, the total catch at Chumnankoni was only one-third of what the Game Warden had seen caught 3 months earlier.

296. The Fisheries Officer's estimate of the lake's total daily catch at 17 landings was 50,000, which is exactly half of the Game Warden's earlier estimate. About 700 nets were being fished. He examined 1,205 *tilapia* with a view to ascertaining the breeding range. Of 116 ripe females which were examined 108 measured 20 to 25 centimetres ; and of these 54 were 22 to 23 cms. ; one female was ripe (*e.g.*, ready to deposit its ova) at a length of 18 cms., and two at 19 cms.

297. The average weight of a fresh *ngege* is 6·63 ounces, which is reduced as low as 1 ounce after smoking.

The results of the investigations are reassuring, and there is no cause for alarm at the number—or the small size—being caught. Any serious decrease in the extent of catches would adjust itself through fishing becoming uneconomical.

298. The Fisheries Officer has recorded "It is evident that in an enclosed environment or without access to fresh water the *T. nilotica* becomes stunted (*vide* Worthington, Lake Albert, p. 91). There is no lack of feeding in this lake. At Lake Kyoga we have opposite conditions, that is, clear water with insufficient plankton and also a stunted fish. It is

possible that there is something in the water which may be responsible for the lack of growth . . . if these *ngege* were of normal growth the fishery would be worth four or five times what it is at present."

A five-inch net which was set overnight and also tried out by driving did not catch a single fish.

299. Standard prices are in force throughout the landings, *e.g.*, 40 per Sh. 1, or Shs. 12/50 cents per 500, fresh ; Shs. 15 to Shs. 16 per 500 smoked.

300. This fishery has been dealt with at length for, besides being a record of achievement due to the Game Department's introductions of *T. nilotica*, it also serves as a warning against indiscriminate introductions, even of indigenous species, to improve fisheries.

It is true that the introduced *T. nilotica* has established itself in remarkable fashion and is superabundant, but it is equally irrefutable that owing to some local factor or factors, at present unknown, it has become extraordinarily stunted, and, in consequence, fishing with small mesh nets should not harm the stock.

301. *Lake Kachira.*—In the middle of 1947 immigrant Africans became interested in the potentialities of Lake Kachira, and applications were received to develop a fishing industry with gill-nets operated from introduced Sese canoes. Lake Kachira is a shallow water region of considerable extent which lies partly in Koki (Masaka) and partly in Ankole. The northern part of the lake is overgrown with aquatic vegetation, and the fishing grounds commence about one mile south of Mukokoti, the most northerly landing on the Koki side, which is at present the only landing accessible by mechanical transport—over several miles of extremely rough road.

302. *Tilapia nilotica* were introduced into this lake by the Game Department in 1936 (para. 295, 1936), and again in 1940. An introduction of alleged blue gills in 1945, was in fact referable to *Tilapia esculenta* (from the King's Lake, Kampala).

In addition to *Tilapia* (*ngege*) there are also *male* (*Clarias* sp.), *nsonzi* (small *Clarias* sp.) and *buyamba* (or *nkeje* (*Haplochromis* sp.)) in this lake, The local inhabitants, but not the *ngege* fishermen, catch *male* with hooks. and *nsonzi* and *buyamba* in baskets.

303. The landings—five in all—used by the *ngege* fishermen are on the Koki side of the lake ; with the exception of Mukokoti they are accessible only by water. The *ngege* fishing industry is in the hands of (*a*) the Koki Lakes Fishing Company, and (*b*) Abumbakalli Abdullah, a Muziba with considerable commercial interests in the Masaka District.

At the end of September there were 4 Sese canoes, 25 dug-outs, and at least 46 fishermen engaged in fishing.

304. The price of a dug-out canoe on the lake is Shs. 20. The price of second-hand Sese canoes at Bukakata, on Lake Victoria, is Shs. 200, and their transport to Kachira costs a further Shs. 120. New Sese canoes can be purchased in Kampala at Shs. 350 to Shs. 400, and transport to Kachira is an additional Shs. 150.

305. As both five-inch and three-inch gill-nets were being used, arrangements were made to prohibit the use of all nets of a mesh smaller than five-inches, as the unrestricted use of small mesh nets could only result in ruining this fishery from the outset. The local controlled price of the five-inch net was then Shs. 26/50 cents ; and of the three-inch net Shs. 12/52 cents (with a black market price of Shs. 17).

The normal life of a gill-net is said to be about two months, but this period is usually greatly reduced owing to the damage done by crocodiles.

306. From 26th. September to 9th October, Abumbakalli using twenty five-inch gill-nets caught 811 large size *ngege*, and six of the nets were damaged by crocodiles. Using six three-inch nets from 1st to 10th October he caught 643 small size *ngege*, and had four nets damaged by crocodiles. In 55 fishing days between June and August, the Koki Lakes Fishing Company caught only 2,668 *ngege*.

307. Very little fresh fish is sold, and the majority of the *ngege* are salt cured, *e.g.*, 3 days in salt, followed by 5 days in the sun ; or smoked, a process which takes 4 days.

The prices of *ngege*, fresh or cured, are—large size 25 cents each, small size 10 cents each.

Each Saturday about 150 cyclists proceed to Mukokoti to purchase the cured fish ; they in turn sell it in Koki and Kabula ; some is sent by bus from Lyantonde to Masaka.

To enable this fishing industry to flourish steps will have to be taken to reduce the crocodiles.

308. The Fisheries Officer visited this lake during the latter part of November and found eight landings in use along the Koki shore. Engaged in fishing were 4 Sese canoes, 7 Koki boats and 21 dug-outs.

309. *Ngege* of three sizes were being caught according to whether fishing was with five-inch, four-inch or three-inch nets ; their prices respectively were 25 cents, 10 cents and 5 cents.

The gill-net fishery is concentrated in the southern half of the lake which has the "green" (plankton filled) water which provides the *ngege's* food supply ; one-third of this lake, at the northern end, is covered with a dense growth of aquatic plants and weed, and the water is very clear.

310. Experimental netting was undertaken in 13 feet of water in the centre of the lake with the following results :—

20th November.—16 old and torn $3\frac{1}{4}$-inch mesh nets set from 8-00 a.m. to 6-00 p.m. :—

39 *Tilapia* caught, weighing 19 lbs., and measuring 18–26 centimetres :—

24 females : 15 males. Ripe females 2 (21–23 cms.), Ripening females 4 (20–23 cms.), Ripe males 3 (22 cms.).

20th November.—3 good $3\frac{1}{4}$-inch nets set from 8-00 a.m. to 6-00 p.m. :—

30 *Tilapia* caught, weighing 15 lbs., and measuring 17–14 cms. :—

16 females : 14 males. Ripe females Nil. Ripe males 1 (22 cms.).

20*th November*.—11 fair 5-inch nets set from 8-00 a.m. to 6-00 p.m. :—
34 *Tilapia* caught, weighing 45 lbs., and measuring 25–37 cms. :—
14 females : 20 males. Ripe females 7. Ripening females 4, Ripe males 8.

21*st November*.—2 good 4-inch nets set from 8-00 a.m. to 6-00 p.m. :—
60 *Tilapia* caught, weighing 38 lbs., and measuring 23–27 cms. :—
41 females : 19 males. Ripe females 10, Ripening females 18, Ripe males 12.

21*st November*.—3 good 5-inch nets set from 10-00 a.m. to 7-00 p.m. :—
15 *Tilapia* caught, weighing 20 lbs., and measuring 26–36 cms. :—
3 females : 12 males. Ripe females 1, Spent female 1, Ripe males 4.

311. A number of the gill-net fishermen were engaged in making 3-inch nets. These measure $3\frac{1}{2}$ inches when first constructed, and shrink to $3\frac{1}{4}$ or 3 inches after being fished. The most popular thread is 4 cord No. 10. It was claimed that the cost of the cotton for a 50 yards long 3-inch net was Shs. 28, and the charge for making Shs. 8, so that the total cost of a net was Shs. 36.

A number of different brands of thread were tested against a thread from a 5-inch flax net, and all were found to be poor in comparison.

312. All the Bakoki owning dug-outs fish for *Clarias* with long lines, and when conditions are favourable do some *nsonzi* fishing as well. The long lines are baited with *Haplochromis* (*buyamba*). At the northern end of the lake the *buyamba* are in such numbers that up to 300 a day can be caught with one rod and line. Those not required for bait are smoked and sold at the local market at about Sh. 1 per thousand. At the time of the Fisheries Officer's visit 6 to 8 *Clarias* were being caught per long line of 50 hooks.

313. Along the Ankole shore there are seven landings which are used by 15 dug-outs : no net fishing was taking place from that side.

There are hippopotamuses in this lake, but they do not constitute a menace to the fishermen or their nets, though they are a source of considerable complaint in the hope of producing a supply of meat.

314. Evidently Lake Kachira can on a restricted scale maintain a profitable fishing industry which preferably should be in the hands of the local inhabitants and not exploited by immigrant African capitalists. The purpose of stocking this lake with *Tilapia* was to provide food and a livelihood for the local inhabitants.

315. *Lake Nakavali* (*Ankole*).—During November, the Fisheries Officer, accompanied by a couple of fish guards visited Lake Nakavali to investigate the *ngege* fishery, and to deal with the numerous crocodiles (*vide* para. 344) which were once again reported to be exceedingly troublesome.

316. As a result of these investigations the Fisheries Officer recommended the extension of the five-inch gill-net industry by :—

(i) Four permits for two five-inch gill-nets each to be issued to four new fishermen for use from the northern landing at Koshosho ; and

(ii) Four similar permits for use from the southern landing at Musisera.

This would increase to twenty-four the total of five-inch gill-nets, which is considered to be the maximum number permissible at present.

317. Further, in order to demonstrate the proper use of the five-inch gill-net, some of the Nakavali fishermen were sent to Katunguru for instruction, where they also were able to acquire knowledge about net repairing and the processing of fish.

Although eight five-inch gill-nets was previously the extent of the approved effort in this lake, little definite was known about the dimensions of the catch, part of which was regularly sold in Mbarara, part to the tin mining area, and the balance consumed locally.

318. A senior fish guard was sent to this lake in November to undertake experimental netting, but his gill-nets were quickly destroyed by crocodiles. The abundance of crocodiles precludes fishing by night with set nets which accordingly can only be fished during the daylight hours when catches are usually meagre. Whereas a net set by night catches 15–20 fish, by day the catch is only 3–6.

319. The *ngege* catch checked by this guard on nineteen days during the period 9th to 29th November totalled 1,565, of which 1,198 were males, and 367 females. No details were kept of the weight of the *ngege*, nor of the number of nets (presumably 8, or less) which were fished daily. Based on 8 nets the average daily catch is 82 *ngege ;* the minimum is 10, and the maximum 211. On seven days only did the catch exceed one hundred fish. Driving of fish, which would result in larger numbers of fish being caught, is not resorted to possibly owing to the laziness or lack of interest of the permit holders.

The wholesale price of *ngege* at the landings is 20 cents per fish, but they are retailed at 35 cents.

320. At the end of August, two senior fish guards were sent to investigate the Nakavali fishery. They reported that three dug-outs, each using three five-inch nets, were engaged in the industry. Up to 300 *ngege* a day are caught by the total effort. According to the fishermen's own figures, during the eight months April to November, a total of 16,130 *ngege* were caught in 165 fishing days. A paddler is paid Shs. 15 a month, and given one *ngege*, for food, per day. A net costs Shs. 25/50 cents. The value of this industry is about £1,000 per annum.

321. A few *Clarias* are caught on long lines. Seasonally the fishermen migrate to localities where *nsonzi* are plentiful. The permit-holders are a poor lot ; they do no fishing themselves, but employ the locals to do it for them.

322. *Lake Mburo* (*Ankole*).—Lake Mburo, which is just north of Lake Nakavali, but without open water connection, has been investigated. It contains *Tilapia nilotica* in small numbers, and a few adults, which were breeding, were caught. There were sixteen dug-outs—mainly one man craft—on this lake, engaged in long lining for *Clarias* and which also catch *Haplochromis* with hand-operated boat-shaped baskets.

323. *Lake Bunyonyi* (*Kigezi*).—In August it was reported that there had been a general falling off in the fish supply from Lake Bunyonyi ; that the consumers could not obtain enough for normal requirements ; that the fishermen no longer caught as many as formerly ; and that the *ngege* were smaller than they used to be, and compared unfavourably with those from Lake Mutanda.

324. This unsatisfactory state of affairs is undoubtedly a direct result of the heavy mortality reported twelve months previously (*see* paras. 183 and 304, Part II, 1946), and will probably be remedied as soon as the large stocks of juvenile fish attain a sufficient size to enable them to be taken in the five-inch gill-net.

325. Two senior fish guards who investigated the fishery in the latter part of September reported an abundance of young fish, although at that time scarcely a fish was being taken in the five-inch nets. However, there was an improvement before the year closed.

326. *Lake Mutanda* (*Kigezi*).—During September two senior fish guards were sent to Lake Mutanda to report on the *ngege* fishery which was said to be flourishing. They found that the effort consisted of five fishermen, each fishing one five-inch net from one dug-out. The normal five-inch net is cut into three pieces each of which is set in a different place : each piece of net caught twenty or more *ngege ;* these are retailed in the Kisoro market at 30 cents each. The heaviest catches are made when the nets are fished at night. The nets which are obtained from the District Commissioner at Kabale cost Shs. 25/45 cents each.

327. *Lake Muleyhe* (*Kigezi*).—Lake Muleyhe although small in size, and shallow, supports an abundance of *ngege*. The two senior fish guards who were sent in September to investigate this fishery reported that it is conducted mainly by the local inhabitants, with, in addition, a few Baganda. Twenty dug-outs are permitted to fish, each with one five-inch gill-net : as in Lake Mutanda the normal five-inch gill-net is fished cut into three pieces, and one piece may catch as many as 60 to 70 *ngege*. Each dug-out has a crew of two paddlers who receive a monthly wage of Shs. 8 to Shs. 12 each. These *ngege* when dried sell for 30 cents in the Kisoro market. A proportion of the Muleyhe catch is purchased to feed mine labour. The price of nets is the same as at Lake Mutanda. In September few *ngege* were being caught ; it is said that the best months are March, August and October. *Nsonzi* in small quantities are also caught. As anticipated the gill-nets have effectively cleared out of this lake the numerous ducks, great crested grebes and other diving waterfowl which used to be such an attractive feature.

328. *Lake Mugisha or Kayumba* (*Kigezi*).—In the course of the two senior fish guards' September tour Lake Kayumba was visited ; the effort is restricted to two fishermen operating separately. The five-inch nets are cut into two pieces. If nets were more readily obtainable the effort would be greater. The nets are obtained from the District Commissioner at Kabale. *Ngege*, which sell locally at 25 cents fresh, or in the Kisoro market dried at 30 cents, are said to be plentiful; the best fishing months are February, March, April, May and June. Small quantities of *nsonzi* are also caught.

329. *Lake Chahafi* (*Kigezi*).—In September, when this small lake was visited by two senior fish guards, nine dug-outs were engaged in fishing for *nsonzi*. Ten small baskets catch a total of 45 to 50 of these tasty little fish. Owing to the abundance elsewhere of other species the Baganda and Baziba no longer trade in *nsonzi* all of which are sold locally. A stick of 14 dried *nsonzi* sells for 30 cents in the Kisoro market. It is said that most *nsonzi* are caught during the months of February and March.

330. *Lake Nabugabo* (*Masaka*).—There is little to add to what was recorded last year (para. 193, Part II, 1946). In August, what was once a well frequented fish landing at the north-west corner was inspected. Seven to twelve dug-outs were using this landing and their catches were ridiculous. The nets used are home made of coarse thread, and of 3 to 3½-inch mesh: some basket traps and longlines are also fished. One morning the total catch of seven dug-outs consisted of: 3 *semutundu*, 7 *mamba*, 1 *nzere* and 33 *ngege* (weighing 18 lbs.). The total value of this catch was Shs. 12. One *mamba* weighed 15 lbs.

331. *Lake Kaianja* (*Masaka*).—It is not yet known what is the result of the *Tilapia esculenta* introductions, *vide* paragraph 229, Part II, 1946, but some fishing with baskets periodically takes place in this lake.

332. *Lake Saka* (*Toro*).—With reference to the remarks in paragraph 197, Part II, 1946, it now has to be conceded, as the result of aquarium observations by the Fisheries Officer at Kichwamba, that the introduction of *Tilapia nilotica* has most decidedly been a contributory factor in driving away the once plentiful duck population of Lake Saka.

333. The voraciousness of *T. nilotica* where water weed is concerned has been demonstrated spectacularly in an aquarium tank : it is possible that the activities of the introduced *T. nilotica* have also adversely affected the supplies of duck feed in Lake Bunyonyi. Further, it can be recorded that aquarium observations also suggest an explanation for the disappearance from Lake Bunyonyi of the *Tilapia nigra*, which were introduced in 1932, by the end of 1935 seemed well established, but two years later had vanished. It would appear that in waters which are suitable for *Tilapia nilotica* no other species of *Tilapia* is likely to compete successfully ; *Tilapia nilotica* is dominant, which would account for the disappearance of *T. nigra* from Lake Bunyonyi, and more especially as this lake's *Tilapia* feeding grounds are so limited.

334. *Lake Isunga* (*Toro*).—There is nothing further to report about the fishing in this lake. The large insect larva referred to in para. 199, Part II, 1946, has been identified with a species of nymph. Using this bait it should be possible to have good sport anywhere angling for *T. nilotica* provided there are no predatory *Haplochromis*.

335. *Victoria Nile* (*Buruli, Buganda*).—It was possible for a period of 63 days to investigate the fisheries in the Victoria Nile, based on Lwampanga ; and for 61 days those at Kabasambwa. These fisheries are conducted with hooks and baskets. The appended Table gives details of the catches. The average weight of the *nandere* is 0·42 lb. (the same as last year) ; and of the three predators—*semutundu* 6·3 lbs., *male* 5 lbs.. and *mamba* 9·8 lbs.

336. VICTORIA NILE—BURULI—BUGANDA

	Landing			
	Lwampanga		Kabasambwa	
Days	63		61	
Hooks	12,242		8,175	
Baskets	2,854		1,391	
	No.	*lbs.*	*No.*	*lbs.*
Nandere	5,028	2,224	6,753	2,734
Semutundu	747	4,867	648	3,850
Kasulubana	54	53	27	26
Kisinja	245	412	145	257
Male	762	3,704	708	3,548
Mamba	458	4,841	410	3,641
Ningu	...	...	1	3
Nkeje	30	7	118	26
Nzere	...	...	2	1
TOTAL ...	7,324	16,108	8,812	14,086

337. *Teso and Lango Dams.*—All the Teso and Lango dams contain several species of fish, but so far no organised fishing has been possible. Encroaching weed precludes successful net fishing, and though the use of rod and line does produce results catches are irregular, and in consequence there is little effort. *Male* up to 25 lbs. in weight have been taken on long lines, with baited hooks. The local inhabitants, however, reap a rich harvest in the flood season when fish are washed over the spillways and can be picked up in quantities. In a few of the dams there are small crocodiles.

(6) INTRODUCTIONS

(7) FISH TRANSFERS

338. During 1947 there have been neither any introductions, nor transfers of fish.

(8) CROCODILES

(i) *Control*

339. *Lake Victoria.*—During the months of August, September and October, as well as part of November, the annual campaign against the female crocodiles on the breeding grounds was prosecuted with the usual vigour.

Owing to the difficulty of obtaining launches for the necessary periods, once again perforce the major portion of the operations had to be conducted from canoes. Notwithstanding this handicap 152 crocodiles were destroyed, almost the same number as last year (150).

340. Crocodiles killed (mainly breeding females), nests found, and eggs destroyed, were :—

	Crocodiles killed	Nests found	Eggs destroyed
	152	184	9,128
In 1946 ...	150	284	13,538

341. A noteworthy feature of this year's campaign has been the occurrence in three separate nests of double yolked eggs, a phenomenon which the Game Warden has not previously seen. One nest contained two of these outsize eggs : they were sent fresh by air to England for expert examination and each was found to contain two perfectly developed embryos.

Several consignments of crocodiles' eggs have been sent by air to St. Mary's Hospital, Paddington, for research purposes. All the eggs arrived intact, but, unfortunately, the embryos they contain are liable to become distorted owing to excessive vibration during transit.

342. In the Damba to Katebo region large females killed were seven of 11 feet and over and two of 12 feet and over. Large males killed in the same area were five of 12 feet and over, two of 13 feet and over, and one of 14 feet 2 inches.

In the Sese region the score was twelve females of 11 feet and over, seven of 12 feet and over, one of 13 feet 3 inches, and three of 14 feet and over, the largest being 14 feet 9 inches. Outsize males killed in the same area were one of 12 feet 1 inch, three exceeding 13 feet, one of 15 feet 10 inches, and one of 17 feet 3 inches.

343. The tally of nests containing 70 eggs or over was : in the Damba to Katebo region, five of 70 or over, one of 83, one of 90, and one of 91 : in Sese, sixteen of 70 or over, and one of 80.

Except in the mating season crocodiles are normally mute, but this year in the course of shooting up a breeding ground a large female bellowed loudly when hit in the body—unprecedented behaviour.

344. *Loan of Weapons.*—During the last six months of the year, a member of the public at Jinja, using a weapon loaned by the Game Department destroyed 173 crocodiles. His efforts are greatly appreciated by the local fishermen who, however, are unwisely wading out to the islands in the Nile where fish are in abundance, and sooner or later a tragedy is inevitable.

345. *Lake Nakavali.*—In November, 1947, the Fisheries Officer carried out a successful anti-crocodile campaign in the northern portion of this lake where he found 37 nests on Kachwekire Island ; seventeen of these had already hatched out. 16 crocodiles were killed, and 543 eggs destroyed. A subsequent poisoning campaign was not successful, as evidently the same crocodiles consumed too many baits which they then

vomited. Experimental netting which was being carried out at the same time came to an end suddenly when crocodiles damaged the nets beyond repair.

346. *Lake Kachira.*—The development of a successful fishing industry in Lake Kachira is at present impossible owing to the abundance of crocodiles. These elusive creatures are not often visible, though the damage they do to the fishermens' nets is very real. It has not yet been possible to take much remedial action. At the end of November the Fisheries Officer killed three crocodiles and destroyed a nest containing 62 eggs ; only a few other crocodiles were seen, and some old nests found. One crocodile which was shot in the clear water at the northern end of the lake was of the "button" type ; the others killed at the southern end were of the "buttonless" variety. The Fisheries Officer records that the "button" type example was easily distinguished by colour, greatly protruding back and neck armour and on top of head, and horizontally rectangular belly scales, as compared with the vertical belly scale of the "buttonless" type.

347. *Lake Nabugabo.*—There is no doubt that a few crocodiles still remain to pollute this erstwhile holiday resort.

(ii) *Industry*

348. *Lake Kyoga.*—Owing to a slump in the overseas market this crocodile industry, which exported many thousands of skins in 1946, has been virtually inactive. Relatively few crocodile skins were obtained, and the total exported by reputable firms was about 3,000 skins only, valued at approximately £6,000 : whereas in 1946, fishermen and others had been paid nearly £10,000 in the Lake Kyoga region. At the end of the year, however, there were signs of a revival. The promotion of this industry, apart from its dollar earning capacity, is of great economic importance, as no gill-net fishery can develop in Lake Kyoga until the numerous crocodiles have been substantially reduced. The percentage of "button" skins, and of otherwise valueless skins continues to be high.

Due to an oversight, the Annual Report, 1946, Part II, omitted to mention that in 1946 the preparation of crocodile skins for export had been changed for the better from the dry to the wet salted process.

349. *Lake Albert.*—Crocodile trapping in Lake Albert has not been resumed, but late in the year permission was accorded an applicant to investigate the potentialities of the Semliki River.

(iii) *General*

350. *Crocodile and Buffalo.*—In 1946, it was reported from Busoga that a crocodile seized and overcame a buffalo.

351. *A Crocodile Story.*—Also in 1946 wide publicity was given to a story that Shs. 400 had been found in the stomach of a crocodile killed in Busoga. It was a good story, but in fact only Shs. 46 were found in the beast.

(9) GENERAL NOTES

352. *Maximum Weights of Fish.*—The heaviest fish recorded are :—

	Lake Victoria	Katwe	Katunguru	Kaianja
	lbs.	*lbs.*	*lbs.*	*lbs.*
Ngege	3– 4	4– 6	4– 5	2–4
Semutundu	30–71	45–69	50–69	...
Kasulubana	10–20	5–10	10–19	...
Kisinja	12–19	...	15–23	...
Male	30	30	36	...
Mamba	45–58	30	54–56	36

353. Outstanding amongst these weights are :—

(i) *Lake Victoria :—*
- (*a*) *Semutundu* ... 71 lbs.
- (*b*) *Kasulubana* ... 20 lbs.
- (*c*) *Mamba* ... 58 lbs. ; and 45 lbs.

(ii) *Katwe :—*
- (*a*) *Ngege* ... 6 lbs.
- (*b*) *Semutundu* ... 69 lbs. ; and 45 lbs.

(iii) *Katunguru :—*
- (*a*) *Semutundu* ... 69 lbs. ; and 50 lbs.
- (*b*) *Kisinja* ... 23 lbs.
- (*c*) *Mamba* ... 56 lbs. ; and 54 lbs.

(iv) *Kaianja :—*
- (*a*) *Mamba* ... 36 lbs.

354. *Vide* paragraph 258, this Belgian fishing company claimed to have caught recently in their seine net a Nile perch weighing 286 lbs., which is the maximum weight so far recorded from Lake Albert.

355. *Fish Mortality.*—Although it is believed that for a brief period there was considerable mortality amongst the Nile perch in Lake Albert, no details were received.

356. *East African Freshwater Fisheries Research Institute.*—Owing to unforeseen delays in commencing building, and the consequent lack of facilities, little research has yet been possible, though, it is understood, preliminary fishery investigations of Lake Victoria in the vicinity of Jinja have been carried out.

357. *Public Utility Company.*—A Public Utility Company to be known as the Uganda Fish Marketing Corporation, in which the Government will have the controlling interest, has been in process of formation. Its purpose is the expert preparation and processing, marketing and distribution of fish from all the waters of the Protectorate, with, at present, the exception of Lake Victoria, and includes the catching of crocodiles and the preparation and marketing of their skins.

358. *Owen Falls.*—The scheme to construct a barrage across the River Nile at the Owen Falls was carefully examined by the Lake Victoria Fisheries Board in connection with the effect this obstacle will have on fish

movement. The species of fish concerned—the *kisinja* or barbel, *Barbus altianalis radcliffei*—once the barrage has been constructed, will no longer be able to move from the Nile into Lake Victoria. The question for consideration was whether it will be necessary to incorporate in the dam a fish ladder to enable the barbel to move between the river and the lake. It was, however, decided in view of the low economic value of this species, the heavy cost involved, and the large water requirements of a fish ladder, that its provision is unnecessary.

359. *Visit of Mr. Schwartz.*—Mr. Schwartz, a Palestine expert on fish culture and fish farming, paid the Protectorate a brief visit in March. He was not interested in the potentialities of small scale fish farming in association with Uganda's vast swamp areas, the development of which for fish culture by modified methods seems inevitable—this was the view of the Colonial Fisheries Adviser, Mr. C. F. Hickling, *vide* para. 309, 1946 Part II. Mr. Schwartz was only interested in localities in which there are fast flowing, permanent rivers with sufficient fall to enable requirements for fish ponds to be drawn off by gravity on to conveniently flat land. He concentrated on the area immediately east of Mt. Elgon which he considered ideal, but what Uganda needs is not commercial fish farming on Palestinian lines, but the development of a small type of fish pond, stocked with suitable indigenous species, which can be simply constructed and maintained on small holdings.

(C) Angling

TROUT

360. (i) *Brown Trout.*—A few more brown trout of ¾ lb. to 1½ lbs. weight have been caught in the Ruimi (or Dwimi) river of the Toro District Up till now only experimental fishing has been permitted in this river, but as most anglers who have visited it have achieved a considerable measure of success, it was decided to open its waters for trout fishing. This was effected under the provisions of Legal Notice No. 243, published in December, since when only those possessing the requisite trout licence are allowed to fish. No restriction has been placed on the type of lure which may be used.

361. (ii) *Rainbow Trout*—(*a*) *Bukwa River.*—Reports received at the end of the year indicated that the fishing in the Bukwa had much improved, and many fish were being taken weighing from 1 lb. to 1½ lbs. weight. The supply of crabs seems to be extraordinarily plentiful, as the stomach contents of a number of fish examined consisted mainly of these crustaceans, in fact, four stomachs contained a total of 16 crabs.

362. (*b*) *Suam River.*—Reports indicate there are plenty of fish, though generally of small size.

363. (*c*) *Siti River.*—There has been more than one attempt to discover what has happened to the 1943 introduction (*see* para. 316, Part II, 1946). A report received from some Mbale anglers indicated that there was not a trout left in the river, conditions were generally adverse; immediately below the point of introduction is a gorge with a series of steep falls, while not far above the point of introduction are more falls

high enough to prevent the fish moving up to suitable breeding grounds. In consequence, it was fairly evident that it was most unlikely that any of the introduced fish could have bred in the restricted waters between the two lots of falls, and if there were any trout they could only be survivors of the original 18.

364. But two members of the Suam and Kaptega Angling Association who were permitted to try their luck in the Siti were more fortunate, and it is possible that they caught the only survivor of the 1943 introduction, for they did catch on 20th December, a magnificent specimen. It was a hen fish in wonderful condition, and containing a mass of ripe ova. It weighed 5 lbs. 8 ozs., its length was 21½ inches, and its girth 15 inches.

365. The table of its capture is an epic, for after a 20 minutes' struggle in the morning it was lost when the landing net inadvertently touched and broke the cast. It was, however, hooked again in the late afternoon, when, no doubt wearied by its earlier efforts, it put up little fight and was successfully landed.

366. Its stomach contents included the remains of crabs, a complete nymphal frog about four inches long, and a mass of *Coleoptera*, *Hymenoptera*, etc. The whole fish was sent salted to the Game Warden, and was received in excellent condition. It was then forwarded to the Fish Warden in Nairobi, for scale reading by the River Research Biologist, whose report is below :—

"*Age* 2-4 s (6 years old).

Lengths at ...	1 *year*	2 *years*	3 *years*	4 *years*	5 *years*	6 *years*
	5 *ins.*	8 *ins.*	13·5 *ins.*	16 *ins.*	19·25 *ins.*	21·5 *ins.*
Increments ...	5 *ins.*	3 *ins.*	5·5 *ins.*	2·5 *ins.*	3·25 *ins.*	2·25 *ins.*

Spawning marks distinct at 13·5, 16·0, 19·25 and 21·5 inches, but these are of course not evidence of a successful spawning. An old fish for a rainbow. Transferred at presumably 8 inches, but showing very even growth thereafter, the 5·5 inches increment being probably due to the new river environment. Scales very difficult to interpret satisfactorily, and age-lengths from 3 to 6 years old probably incorrect owing to severe erosion.

367. The stomach contents sent to the Biologist were fairly fragmented, and included the remains of adult aquatic *Coleoptera*, an *Odonata* (aeschnid) nymph, river crabs *Potamon* (crustacea), larvae of *Hydropsyche* (*Trichoptera*), and nymphs of *Polymitarcys* (*Ephemeroptera*).

The examining Biologist comments : "A fairly average trout diet for East Africa . . . The above list is a provisional one as regards names. Most of the freshwater insects in East Africa are very imperfectly known and most are not even named yet, so that it is impossible at present to go much further than a tentative generic classification."

368. (iii) *Trout Licences.*—The revenue derived from the sale of Trout Licences amounted to £15 16 shillings, which is a fifty per cent. increase on last year.

369. *Nile Perch or Mputa—Lates albertianus.*—A report received from an angler who has consistently fished around Butiaba for many years, records that during 1946–47 although he was out only a few times he always managed to get a few small Nile pereh with an occasional 50 lbs.–100 lbs. fish. He emphasised that the fishing in the Butiaba area has deteriorated greatly since 1939, which was his record year, and at the end of which year the fish were found to be very foul and covered with lice. He suggests that the Butiaba waters may have become so infected with lice that the Nile perch were forced to migrate. This fisherman further records that during the last year or two all the fish he has caught in the same locality have been clean, from which he concludes the area is once again clean, so it is hoped that the fish will become more plentiful there.

370. Reports of the occurrence of the Nile perch in the Aswa (or Moroto) river in the vicinity of the Lira–Kitgum road bridge have been investigated, and it has been established without doubt that small examples of this sporting fish are found in these waters. The *Ogur* of the Aswa is, however, the *Bagrus docmac*, which elsewhere in Lango is called *Obanga.*

371. *Ripon Falls Barbel.*—With the advent of a greater volume of water the barbel fishing below the Ripon Falls, as well as at the Owen Falls, has improved considerably. This same barbel also occurs seasonally at Entebbe, and one enthusiast using a hand line caught over two hundred during the year from the steamer pier, the largest weighing 13½ lbs.

372. *Tilapia variabilis.*—Angling for *Tilapia variabilis* above the Ripon Falls at Jinja is as popular as ever. The extent of catches fluctuates considerably according to season.

C. R. S. PITMAN,
Game Warden,

ENTEBBE,
MARCH, 1949.

I.—LAKE VICTORIA—WESTERN MENGO. FIVE-INCH NETS

Landing	Days	Nets	Hooks	Baskets	Ngege		Semutundu		Kasulubana		Kisinja		Male		Mamba		Ningu		Nkeje		Nzere		Mpongo		Total	
					No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.
Nakiyenje ...	291	52,805	...	...	71,410	105,554	13,153	42,736	13,568	26,466	3,045	10,682	1,048	5,421	173	1,167	2	3	4	6	3	...	3,631	4,188	106,036	195,921
Nakifulube ...	250	20,495	...	1,660	24,620	37,482	12,760	37,641	19,875	37,806	1,371	4,673	744	3,676	81	533	2	3	20	6	1	1	2,798	3,216	62,272	125,037
Katebo ...	281	34,084	3,500	183	75,551	114,073	10,629	41,256	4,950	10,855	2,569	9,332	751	3,474	320	2,360	1	1	...	...	...	...	2,289	2,338	97,069	183,089
Buganga ...	163	6,899	15,464	...	2,747	4,157	4,423	14,043	7,057	13,964	518	1,908	356	2,111	65	593	...	...	...	...	...	...	538	681	15,694	37,457
Kyanvubu ...	48	2,627	...	...	1,384	1,975	40	194	87	134	23	71	10	39	4	26	...	...	...	...	...	...	12	10	1,560	2,449
Nakiwogo ...	111	4,022	...	...	2,144	3,070	201	731	266	484	63	160	7	34	...	...	...	1	1	...	...	...	96	95	2,778	4,575
Busoga ...	159	5,928	...	...	10,100	15,520	1,472	4,650	833	1,587	165	540	143	902	31	241	...	...	...	...	...	...	643	732	13,387	24,172
Kyasira ...	12	325	...	...	122	201	30	99	26	45	1	5	1	3	...	...	...	...	...	...	...	...	43	45	323	398
Kasozi ...	21	958	...	...	2,440	2,799	246	945	133	358	34	165	25	172	7	93	...	...	...	...	...	...	409	459	3,294	4,991
Dewe	25	633	...	...	499	747	140	380	71	134	18	44	4	15	6	40	...	...	...	...	...	...	59	47	797	1,407
Buku	4	132	...	...	61	84	4	17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	68	104
Mukuba ...	123	7,564	7	9,607	14,224	1,784	6,440	1,334	2,916	220	714	197	998	90	692	...	...	...	...	...	...	...	1,270	1,580	14,588	27,564
Lwaka ...	38	301	10,960	...	132	201	144	502	21	34	12	30	168	646	60	389	...	...	...	...	...	...	11	10	548	1,812
Lwanjaba ...	68	1,821	...	...	1,983	2,961	938	2,977	1,036	2,002	87	340	52	305	6	39	...	...	...	...	...	...	297	342	4,399	8,966
Kasenyi ...	150	4,594	900	...	2,943	4,433	3,278	9,704	3,207	6,480	265	937	139	694	17	112	...	...	...	...	...	...	497	546	10,346	22,906
Kiwani ...	121	...	...	93,288	25,732	29,358	1	1	2	7	1	4	424	1,284	1,060	8,664	1	2	...	...	...	...	4,372	3,306	31,593	42,920
Kazikake ...	68	2,574	...	117	4,984	7,066	1,703	6,456	260	539	484	1,366	297	911	12	74	...	...	...	...	...	...	493	238	8,143	16,650
Kaziru ...	16	344	2,000	...	621	863	104	380	3	7	11	44	8	29	...	...	...	...	...	...	...	...	24	24	771	1,347

II.—LAKE VICTORIA—EASTERN MENGO (INCLUDING KOME ISLAND). FIVE-INCH NETS

Landing	Days	Nets	Hooks	Ngege		Semutundu		Kasulubana		Kisinja		Male		Mamba		Nkeje		Mpongo		Total	
				No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.
Kasirye ...	70	2,445	...	3,123	4,445	373	1,152	145	324	38	118	19	72	5	35	...	...	1,363	1,322	5,066	7,668
Katosi ...	166	14,858	700	25,304	37,776	11,334	33,943	8,917	16,618	1,114	3,430	670	3,533	30	207	...	...	3,617	4,396	50,986	99,903
Kivubu ...	98	11,643	...	15,678	23,707	1,233	4,019	449	918	160	610	314	1,484	29	204	...	...	375	473	18,238	31,415
Munyonyo ...	84	2,829	...	2,546	3,554	634	2,072	346	714	45	142	27	122	5	37	...	...	158	177	3,761	6,818
Kirinda ...	18	468	...	415	578	234	842	12	23	4	10	7	27	...	...	...	...	47	56	719	1,536
Kazikake ...	107	9,951	...	9,082	14,307	5,341	16,746	8,294	15,879	604	2,207	319	1,633	19	146	4	1	1,514	1,891	25,177	52,710
Nakifulube (Kome) ...	61	6,661	...	14,325	21,378	2,969	8,810	5,664	10,059	276	933	173	815	17	102	...	...	1,517	1,785	24,941	43,882
Muvo (Kome) ...	9	834	...	488	753	1,706	5,174	1,036	2,182	71	270	59	193	2	17	...	...	6	6	3,368	8,595
Kagombe ...	3	88	...	55	85	3	7	...	...	...	...	...	...	...	...	...	...	...	...	58	85
Kazikake (Kome) ...	83	6,947	...	14,334	22,048	2,964	9,555	4,531	8,752	261	1,032	148	724	17	139	...	...	1,930	2,501	24,185	44,751

III.—LAKE VICTORIA—MASAKA DISTRICT (INCLUDING SESE ISLANDS). FIVE-INCH NETS

Landing	Days	Nets	Hooks	Traps	Ngege		Semutundu		Kasulubana		Kisinja		Male		Mamba		Ningu		Nkeje		Nzere		Mpongo		Total	
					No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.
Mubanzi ...	136	2,749	3,227	...	1,882	3,026	141	648	16	38	8,976	34,397	143	831	112	1,549	155	220	...	...	...	...	22	22	11,447	40,731
Bukakata ...	89	1,045	30,333	161	783	1,020	1,415	6,599	459	969	296	1,271	675	2,019	61	727	...	...	...	...	...	...	163	122	3,822	12,736
Lambu ...	16	792	...	...	12	16	950	3,211	1,221	2,714	101	463	15	90	...	...	...	...	...	...	...	...	45	44	2,344	6,538
Musangano ...	16	...	3,985	...	...	...	1	3	...	...	1	8	20	119	74	837	...	...	...	...	...	...	...	...	96	967
Nansere ...	48	...	...	341	803	1,081	9	28	...	...	3	9	138	375	50	510	3	3	...	...	...	...	264	197	1,270	2,203
Dimu	6	...	17,137	...	...	...	60	270	...	...	16	48	128	419	94	1,394	...	...	...	...	...	...	...	...	298	2,131
Kakwayo (Sese) ...	128	12,277	...	...	23,667	35,494	4,333	18,332	5,893	10,950	531	1,951	358	1,846	35	244	...	...	...	...	...	...	13,660	16,402	48,477	85,279
Kagolomolo (Sese) ...	125	8,953	...	...	26,734	39,221	2,639	11,151	1,804	3,314½	289	1,022	261	1,252	26	176	...	...	...	...	...	...	6,803	7,974	38,556	64,110½
Bugoma (Sese) ...	36	2,113	...	...	3,312	4,811	1,478	5,795	896	1,724	157	502	59	279	1	5	...	...	...	...	...	...	369	394	6,272	13,510
Lukindu (Sese) ...	13	1,075	...	...	3,211	4,837	179	746	64	98	11	31	16	36	...	...	...	...	...	...	...	...	1,081	1,353	4,562	7,101
Bungo (Sese) ...	91	9,549	...	...	33,395	48,611	2,369	9,370	1,126	2,069	397	1,286½	106	559	31	200	...	...	...	...	...	...	3,143	3,597	40,467	65,713½
Mutambala (Sese) ...	54	3,432	...	...	11,293	16,389	1,130	4,376	467	921	94	313	25	147	7	44	...	...	...	...	...	...	2,595	2,869	15,611	25,059
Kasekulo (Sese) ...	89	7,150	...	...	18,872	27,968	2,779	10,782	3,013	5,379	280	993	158	858	14	119	...	...	...	...	...	...	4,935	5,459	30,051	51,558
Kibanga (Sese) ...	40	1,353	...	...	4,125	6,052	255	1,020	201	340	40	129	10	47	1	5	...	...	...	...	...	...	71	78	4,793	7,671
Kyasa	20	393	66,457	...	691	989	184	1,114	29	50	134	509	204	1,475	430	5,607	...	1	...	...	...	...	21	15	2	2	1,786	9,762
Kamuwunga ...	101	1,438	775	619	4,361	6,186	1,043	2,592	615	810	121	480	2,487	5,269	689	5,049	45	42	152	54½	277	119	2,562	1,896	12,352	22,497½
Igoma	93	...	51,074	...	...	...	131	823	...	...	38	164	330	1,855	476	6,230	...	...	...	...	13	6	...	...	988	9,078
Kasensero ...	30	15	9,600	...	37	56	61	368	3	4	17	73	75	374	59	863	1	2	...	...	...	...	...	...	253	1,740
Namirembe ...	35	...	42,850	...	...	...	1,501	7,640	...	...	242	862	203	1,019	22	289	...	...	...	...	...	...	...	...	2,068	9,810
Bale	51	102	40,366	...	54	238	1,171	6,550	12	32	169	662	272	1,175	34	666	4	6	...	...	...	...	5	10	1,721	9,339

IV.—LAKE VICTORIA—JINJA. FIVE-INCH NETS

Landing	Days	Nets	Hooks	Traps	Ngege		Semutundu		Kasulubana		Kisinja		Male		Mamba		Ningu		Nkeje		Nzere		Mpongo		Total	
					No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.	No.	lbs.
Masese ...	248	31,934	...	...	123,035	182,307	11,909	33,458	4,031	6,865	1,129	4,304	656	2,957	152	977	...	...	...	21	6	...	2,828	3,343	143,761	234,217

Punched

V.—LAKE VICTORIA—SMALL MESH NETS—VARIOUS LANDINGS

Landing	Days	Nets	Ngege No.	Ngege lbs.	Semutundu No.	Semutundu lbs.	Kasulubana No.	Kasulubana lbs.	Kisinja No.	Kisinja lbs.	Male No.	Male lbs.	Mamba No.	Mamba lbs.	Ningu No.	Ningu lbs.	Nkeje No.	Nkeje lbs.	Nzere No.	Nzere lbs.	Nsoga No.	Nsoga lbs.	Mpongo No.	Mpongo lbs.	Total No.	Total lbs.
WESTERN MENGO																										
Nakiyenje	29	625	...	...	76	41	1,304	449	187	70	6	8	...	...	1,001	461	1,254	287	58	23	21	5	...	...	3,907	1,344
Bugonga	107	3,145	...	...	512	349	7,669	2,975	176	80	2	6	...	...	2,717	1,520	11,432	2,383	398	158	3,517	928	...	...	26,423	8,399
Katebo	51	2,171	278	99	113	83	147	82	12	15	191	148	35	30	1,593	942	3,838	923	2,286	1,114	535	146	98	48	9,126	3,630
Nakifulube	11	150	...	...	39	21	229	84	38	16	1	2	...	...	389	195	171	38	...	...	17	5	17	4	901	365
Mukuba	16	136	...	...	22	10	172	64	6	2	3	6	...	...	178	104	502	70	...	...	34	4	...	...	917	260
Kasenyi	27	500	1	1	146	94	902	372	146	76	1	5	...	...	765	489	755	228	...	...	37	13	92	27	2,845	1,305
Dewe	23	302	...	...	26	30	2,101	960	45	9	...	...	...	...	55	19	1,239	224	195	58	668	158	...	...	4,329	1,458
Lwanjaba	10	130	...	...	...	...	75	24	57	23	...	...	...	...	194	97	241	47	14	3	71	15	...	...	652	209
Golo	9	278	...	...	14	6	2	1	3	2	8	10	...	...	446	269	253	74	27	9	...	...	...	...	753	371
Lwaka	8	48	...	...	...	...	...	...	...	...	...	...	...	...	10	3	423	72	19	6	212	57	...	...	664	138
EASTERN MENGO																										
Katosi	16	336	...	...	45	21	298	100	113	49	...	...	...	...	588	287	303	71	...	...	6	1	147	34	1,500	563
Kivubu	6	60	...	...	...	...	116	59	3	1	...	...	...	...	11	5	120	46	...	...	...	...	...	...	250	111
Kazikake (Kome) ...	8	200	...	...	77	41	231	76	...	...	...	...	...	...	942	491	323	87	...	...	...	...	...	...	1,573	695
MASAKA																										
Masangano	75	4,133	24	18½	64	46	345	176	59	95½	23	59	1	1	39,254	35,852	138	55	286	100½	...	...	...	...	40,194	36,403½
Mubanzi	77	5,184	9	6	52	49	295	131	74	66	41	96	2	4	58,979	54,886	68	21	289	116	1	1	...	...	59,810	55,376
Igoma	65	7,025	15	9	112	63	186	76	304	129	16	46	1	8	52,431	51,310	1,808	512	726	236	...	...	...	...	55,599	52,389
Kyasa	59	6,384	4	7	32	25	61	34	93	56	13	40	4	44	49,615	48,077	646	193	226	72	...	...	...	...	50,694	48,548
Nansere	10	150	...	...	8	4	33	19	15	16	11	7	...	...	299	195	137	42	63	24	...	...	5	2	571	309
Lambu	2	108	...	...	4	2	33	9	10	5	...	...	...	...	229	135	88	15	11	3	...	...	...	...	375	169
Kaziru	22	176	...	...	...	...	...	...	...	...	...	...	...	...	537	385	93	36	46	13	...	...	...	...	676	434
Namirembe	26	1,273	...	...	2	5	...	...	903	464	...	...	...	...	4,455	2,861	1,689	390	157	54	43	7	3	2	7,252	3,783
Bale	35	951	...	...	7	5	11	5	...	...	14	26	...	...	3,370	2,857	978	111	30	12	27	4	54	39	4,491	3,059

VI.—LAKE VICTORIA—SEINE NETS—ENTEBBE, MENGO AND MASAKA DISTRICTS

Landing	Days	Seine Nets	Ngege No.	Ngege lbs.	Semutundu No.	Semutundu lbs.	Kasulubana No.	Kasulubana lbs.	Kisinja No.	Kisinja lbs.	Male No.	Male lbs.	Mamba No.	Mamba lbs.	Ningu No.	Ningu lbs.	Nkeje No.	Nkeje lbs.	Nzere No.	Nzere lbs.	Nsoga No.	Nsoga lbs.	Mpongo No.	Mpongo lbs.	Total No.	Total lbs.
WESTERN MENGO																										
Bugonga	135	205	60	87	339	380	721	380	90	35	35	128	5	60	581	72	1,205,121	22,061	...	...	...	...	3,072	2,049	1,210,024	25,252
Katebo	56	66	25	39	28	101	33	64	4	11	51	126	15	107	35	7	360,934	14,445	6	3	45	10	522	409	361,698	15,322
Nakifulube	35	35	16	21	84	156	86	74	3	2	5	35	1	8	21	4	178,945	3,995	...	...	123	18	870	694	180,154	5,007
Kasenyi	91	111	20	31	214	369	594	417	12	22	12	38	9	115	8	3	618,204	17,285	...	...	...	...	2,749	1,597	621,822	19,877
Muluku	26	36	...	...	2	9	9	7	3	8	4	10	1	2	...	...	186,559	5,106	...	...	...	...	164	84	186,742	5,226
Kazikake	12	12	6	4	33	27	28	10	...	...	9	21	1	5	7	2	68,905	2,977	...	...	...	...	135	57	69,124	3,103
EASTERN MENGO																										
Katosi	27	25	141	224	9	22	335	198	1	1	1	1	...	...	...	...	131,116	3,597	...	...	...	...	1,164	819	132,767	4,862
MASAKA																										
Bukakata	111	335	85	120	199	718	2,522	4,649	51	28	91	277	37	423	140	74	1,612,339	55,944	41	10	256	53	3,688	2,376	1,619,449	64,672
Nansere	166	365	108	123	417	1,041	1,280	2,585	58	97	222	618	35	348	126	60	2,056,021	62,843	570	53	529	46	9,324	6,302	2,068,690	74,116
Lambu	33	33	8	11	32	89	66	122	...	...	7	28	1	12	5	4	209,112	6,000	...	...	...	...	366	220	209,597	6,486
Igoma	74	131	1,286	1,829	91	427	52	106	43	132	115	471	52	649	290	242	498,479	13,941	4	2	...	...	1,544	1,195	501,956	18,994
Namirembe	76	335	10	12	298	1,381	23	78	619	368	122	275	21	442	257	160	1,129,647	52,483	304	67	5,996	1,022	20,990	18,893	1,158,287	75,181
Bale	59	174	8	14	98	431	55	200	91	98	39	118	9	178	146	59	491,815	18,902	...	...	888	131	14,062	11,648	507,211	31,779
Kaziru	31	31	...	...	6	17	481	821	4	2	...	...	...	...	...	...	117,859	2,853	...	...	...	...	108	69	118,458	3,762
Dimu	6	11	...	...	...	...	...	...	16	3	9	3	1	20	...	...	36,801	1,340	...	...	65	11	33	15	36,925	1,392
Kasensere	14	23	41	53	38	42	1	1	...	...	3	7	8	117	10	10	116,496	2,238	...	...	...	...	161	99	116,758	2,567

VII.—LAKE VICTORIA—DRIED FISH—VARIOUS LANDINGS

Landing	Days	Ngege No.	Ngege lbs.	Semutundu No.	Semutundu lbs.	Kasulubana No.	Kasulubana lbs.	Kisinja No.	Kisinja lbs.	Male No.	Male lbs.	Mamba No.	Mamba lbs.	Ningu No.	Ningu lbs.	Nkeje No.	Nkeje lbs.	Nzere No.	Nzere lbs.	Nsoga No.	Nsoga lbs.	Mpongo No.	Mpongo lbs.	Total No.	Total lbs.
WESTERN MENGO																									
Nakifulube	1	...	...	63	79	...	...	...	...	28	31	3	8	...	...	...	...	...	...	...	...	...	...	94	118
Kasenyi	1	...	...	66	73	670	416	7	9	10	17	...	...	...	...	...	...	...	...	...	...	...	...	753	515
EASTERN MENGO																									
Katosi (Kome) ...	2	...	...	227	234	1,028	882	...	...	53	85	...	...	...	...	...	...	...	...	...	...	...	...	1,308	1,201
Nansagazi (Buvuma)	3	...	...	2,900	2,483	2,080	785	12	34	...	...	...	...	1,000	226	...	...	...	...	...	...	...	...	5,992	3,528
Mwama (Buvuma)	2	...	...	3,621	2,510	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3,621	2,510
Kigombe (Buvuma)	6	20,306	8,479	280	126	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20,586	8,605
Lumu (Buvuma)	4	...	...	6,808	5,991	984	397	62	148	3	4	...	...	1,860	318	154,076	516	...	...	...	...	...	...	163,793	7,374
Ziru (Buvuma) ...	5	...	...	7,843	5,657	1,120	489	...	...	...	...	...	...	5,240	852	859	41	...	...	...	...	...	...	15,062	7,039
Buziri (Buvuma)	10	...	...	12,842	7,595	2,050	357	...	...	...	...	...	...	10,559	2,480	462	57	...	...	...	...	...	...	25,913	10,489
Kiyindi (Buvuma)	7	...	...	19,773	11,578	4,118	2,885	...	...	...	...	...	...	1,750	265	108,000	900	...	...	...	...	...	...	133,770	15,678
Damba (Buvuma)	4	...	...	10,417	8,126	940	708	...	...	...	...	...	...	3,700	687	27,948	174	...	...	...	...	...	...	43,005	9,695
Kibibi (Buvuma)	18	...	...	18,810	9,371	2,020	857	...	...	141	83	...	...	9,929	2,134	2,251	440	...	...	315	52	...	...	33,466	12,937
Lwaje (Buvuma)	12	13,696	3,642	6,244	3,465	301	151	...	...	...	...	...	...	4,900	739	...	...	...	...	...	...	...	...	25,141	9,997
Malijja (Buvuma)	4	62	71	1,240	925	30	17	13	9	9	4	...	...	8,870	2,196	570	60	...	...	...	...	...	...	10,794	3,282
Kerenge (Buvuma)	5	...	...	1,002	784	576	220	21	70	...	...	...	...	2,062	517	700	19	...	...	...	...	...	...	4,361	1,610
Bulolombe (Buvuma)	1	...	...	3,900	2,868	...	...	...	...	...	...	...	...	1,400	253	...	...	...	...	...	...	...	...	5,300	3,121
MASAKA																									
Bukakata (Sese) ...	6	265	170	341	865	18	30	2	4	83	175	...	...	...	...	50,191	520	...	...	...	...	40	19	51,140	1,783